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By-Wagner, Robert W.
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This publication contains four film scripts, each comprising from six to eleven short sequences. Each script has a complete shot list and transcript of the soundtrack, which contains narration, interviews, discussions, and synchronous sound from documentary situations. The six sequences in "The Information Explosion" cover the history of communication; systems of information storage, retrieval, and control, with illustrations from government, industry, and the professions; and a discussion of the effect of media on children. The eight sequences in "The Process of Communication" deal with communication theory; its application in various training situations where simulation, multimedia techniques, and computers are used; and the use of models of communication, such as the teacher. "Perception and Communication" covers, in six sequences, sensory learning, the theory of perception, perceptual training in industry, intercultural perception, and various means of overcoming perceptual barriers. The eleven sequences in "The Teacher and Technology" present the history of educational technology and illustrate a variety of uses for advanced educational media in learning situations, paying particular attention to the teacher's role, and to possible developments in schools of the future. (PM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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" THE INFORMATION EXPLOSION"

One of
A Series of Motion Picture Documents on
Communication Theory and
the New Educational Media

Prepared for the Department of Health, Education and Welfare
and the U.S. Office of Education under terms of Grant B-131-A
Principal Investigator: Robert W. Wagner

Prepared by the Motion Picture Division
The Department of Photography
The Ohio State University

FINAL SCRIPT
November 1966

EM006085

FADE IN:

TITLE CARD # 1

U.S. Department of Health, Education
and Welfare, Office of Education,
Division of Educational Research presents

DISSOLVE TO:

TITLE CARD # 2

The Information Explosion

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DISSOLVE TO:

TITLE CARD #3

produced by
The Ohio State University
Department of Photography
Pursuant to a contract with the U.S. Office
of Education under the provisions of Title Vll
of the National Defense Education Act.

Principal Investigator: Robert W. Wagner

FADE OUT

"The Information Explosion"

Produced under a grant from the Department of Health, Education and Welfare, and the U. S. Office of Education, by the Department of Photography of The Ohio State University

Producer	Robert W. Wagner
Associate Producers	Carl V. Clausen David Parker Hubert Smith
Supervising Editor	Richard Long
Film Editors	John Werner Thomas Snider Emery Meadows
Cinematography	John Friend Richard Sherman
Business Manager	William Drake
Sound	John Werner Richard Long William Buccalo William Finan
Production Assistants	John Delbis Judy Gill June James
Art	Thomas Crane
Narrator	William Steis

Participants: Dr. Edgar Dale, Professor of Education, the Ohio State University; Dr. Wilbur Schramm, Director, Institute for Communication Research, Stanford University; Dr. Marshall McLuhan, Director, Center for Culture and Technology, University of Toronto; Dr. I. Keith Tyler, Professor of Education, the Ohio State University; Gilbert Seldes, author critic, Dean Emeritus, Annenberg School of Communication, The University of Pennsylvania; Albert B. Sabin, M.D., Children's Hospital Research Foundation, Cincinnati, Ohio; Richard Dwyer, age 9, 4th grade student; Leola Johnson, age 15, 10th grade student.

Consultants: Dr. James Finn, Professor of Education, University of Southern California; Dr. George Gerbner, Director Annenberg School of Communications, University of Pennsylvania; Dr. Kenneth Norberg, Professor of Education, Sacramento State University; Dr. Franklin Knower , Professor of Speech, the Ohio State University; Dr. Charles Hoban, Professor of Education, the University of Pennsylvania

FADE IN:

1. MOVING SHOT tunnel lights as seen from car moving through tunnel. The CAMERA TILTS DOWN to reveal another car near end of tunnel.

(SOUND: RANDOM TUNING OF RADIO STATIONS INCLUDING MUSIC, NEWS, WEATHER REPORT, COMMERCIALS, AND TRAFFIC REPORT.)

2. CLOSEUP car radio as a hand pushes button to change station. The CAMERA TILTS UP into CLOSEUP of driver.

3. MOVING SHOT rear of truck. A sign on the truck reads Slow! Watch for Our Children. The CAMERA PANS to a green traffic signal

4. CLOSE SHOT truck body as it moves past camera to reveal woman with child asking directions of police officer.

5. MEDIUM SHOT tour guides as they talk on street. One points with his thumb.

6. CLOSEUP newspapers in news stand rack. The CAMERA PANS rack to show variety of papers.

7. WIDE SHOT newspaper stand. People shop for newspapers and magazines. A man buys a paper.

8. MEDIUS SHOT pedestrians as they move along sidewalk.

9. WIDE SHOT traffic jam. A pedestrian threads his way through the traffic.

10. CLOSEUP camel billboard as man in ad blows smoke ring.

11. MEDIUM SHOT theatre marquee. Below the marquee people jam entrance to theatre.

12. MEDIUM SHOT theatre entrance. People scan pictures in front of theatre. A sign reads, Looking for Love.

13. MEDIUM CLOSEUP SHOT sign. It reads, Cooled by Refrigeration. The sign is surrounded by pictures of glamorous women.

14. CLOSEUP man as he mails a letter.

15. WIDE SHOT busy intersection. A mass of signs, people, and traffic.

16. MEDIUM SHOT traffic light which reads "go." In the b.g. a theatre marquee touts *The Cool World*.

17. WIDE SHOT visitor information booth.

18. WIDE SHOT traffic, people, signs.

19. CLOSEUP weather sign which reads, "warm and fair."

20. CLOSEUP traffic moving past camera.

21. CLOSEUP traffic signal reading "stop"

DISSOLVE TO:

22. INTERIOR BOOK STORE - DAY

MEDIUM SHOT Dr. Edgar Dale.

SUPER: Edgar Dale Professor of Education, The Ohio State University

He is standing near a shelf of hard cover books. More books are seen in the b.g. Dr. Dale is reading a book. He closes it and places it on the book rack nearby. He looks into the camera and addresses the viewer.

DR. DALE

We are in the midst of a revolution in mass communication. Today we have easy access to more and more information. We are bombarded by all kinds of messages in print, on film, on radio, and on television. The teacher needs to become aware of this revolution and to share the concern of the communications specialist in answering these questions:

23. CLOSEUP Dr. Dale

How did this revolution come about? How can it be brought under control? How can we keep our communications system free? And how are human values influenced by the mass media?

24.	EXT. STANFORD UNION PATIO - DAY CLOSEUP Dr. Wilbur Schramm. Super: Wilbur Schramm, Director, Institute for Communication Research, Stanford University He is seated at a table with a group of students.	
25.	GROUP SHOT Schramm and students.	SCHRAMM'S VOICE OVER Let's simply say that mass communication may be used to either divide human beings from one another or to bring them closer together.
26.	CLOSEUP girl	It can be used either to debase them or to ennoble them.
27.	OVER SHOULDER ANGLE MEDIUM SHOT Schramm with students in foreground.	It can be used either to make them more like animals or to make them better men.
28.	WIDE SHOT Schramm and students. They rise and disperse. Dr. Schramm and a student continue to talk as they walk away from the patio. DISSOLVE TO:	When did mass communication begin? The date usually given is that of the beginning of printing from movable type in Western Europe in the 15th century. But the roots are much earlier and the flowering much later.
29.	LUMINA EFFECT (color) A multicolored, drifting, smokelike effect comes in over a dark screen. SUPER LINE DRAWINGS	(MUSIC: MYSTERIOSO THEME)
30.	Primitive Men from cave paintings. DISSOLVE TO:	The need for communication was felt when groups of man-like animals huddled against the cold. . .
31.	Rhino and Wolf chasing man. Zoom in on wolf. DISSOLVE TO:	. . .and dangers of primitive times.
32.	Primitive men DISSOLVE TO:	
33.	Scribe chipping stone Zoom in on hands.	Then language developed as man developed. .

		The tools we call the alphabet. . .
	DISSOLVE TO:	
34.	Row of scribes	. . .and handwriting came at the very dawn of history.
	DISSOLVE TO:	
35.	Montage - primitive drummer, Indian smoke signal, 17th century sign language, Chinese characters.	Man soon found highly ingenious ways of storing knowledge and transmitting information.
	DISSOLVE TO:	
36.	Cuneiform Characters	The first libraries were collections of cut stone tablets. . .
	DISSOLVE TO:	
37.	Greek characters	
	DISSOLVE TO:	
38.	Latin characters	. . .and the first newspaper was also a stone tablet that told what was happening that day in the Roman Senate. . .
	DISSOLVE TO:	(MUSIC UP)
39.	Date: MCDL The Roman numerals move to the botton of the frame	
	MATCH DISSOLVE TO:	(MUSIC UNDER TO SCHRAMM)
40.	Date: 1450. Hold 1450 and dissolve in wine press, grapes and wine bottle. Dissolve bunch of grapes to sheet of paper with Chinese characters. Dissolve wine bottle to ink bottles. Dissolve Chinese characters to Latin characters.	Then came the dramatic events of about 1450 when the old wine press and paper from China...and ink from the Far East... and metal type developed in Western Europe..
	DISSOLVE TO:	
41.	Gutenberg Press. Hold date, 1450, at bottom of frame.	When all these things came together to make printing...
	Zoom in on press	...it was a machine of great power...
	DISSOLVE TO:	
42.	Gutenberg Bible Page Zoom away and	...because it helped to create the book...
	DISSOLVE TO:	

43. Orbin sensualium page

DISSOLVE TO:

44. New England Primer Page

...and the book helped to create the public school

DISSOLVE TO:

45. Students reciting

YOUNG VOICES
(reciting)

"As runs the Glass
Our life doth pass...
My book and Heart
Must never part......"

DISSOLVE TO:

(CROSS FADE VOICES TO VOICE OF SINGLE CHILD)

46. McGuffey First Reader. Zoom in on Illustration

CHILD

Do you see that boy? There are two girls with him. The name of the boy is John. Jane has a book in her hand. They can all read from the book.
They must keep the book clean.
They must see how fast they can learn.

DISSOLVE TO:

47. Early school room. Zoom in on bell on teacher's desk.

(CROSS FADE SCHOOL BELL TO LIBERTY BELL)

DISSOLVE TO:

48. Liberty Bell
Super book, Rights of Colonies over bell.

(BIG BELL UNDER TO SCHRAMM)
(MUSIC: COLONIAL THEME)

And if it hadn't been for the newspapers and magazines, certainly there would have been no political revolutions in the 18th century.

49. Book: The Excursions and Ravages of the King's Troops.

50. Book: Common Sense

Super 19th century cannon over. The cannon explodes and the screen cut to black.

(BELL OUT ABRUPTLY TO BOOM OF CANNON)

LUMINA EFFECT OUT.

FADE IN:

51.	Gutenberg Press. Zoom away and DISSOLVE TO:	(MUSIC: INDUSTRIAL THEME)
52.	Rotary press DISSOLVE TO:	The Industrial Revolution, when it came in the early 19th century, substituted steam and electricity for man's muscles to work the printing press. With it came another dramatic event in the history of communication....
53.	Early camera. Zoom in and DISSOLVE TO:	....a machine was actually interposed in the communications process...
54.	Early photo of Edison with Ediphone. DISSOLVE TO:	...so it could see and
55.	CLOSEUP Edison phonograph as it plays back an early recording. The CAMERA PULLS BACK to include girl listening to recording. The CAMERA ZOOMS IN to darkness of record player horn.	...hear for man. (SOUND: EARLY RECORDING OF I'LL TAKE YOU HOME AGAIN, KATHLEEN")
56.	LIMBO SHOT Telegraph key. It moves across the screen. DISSOLVE TO:	(SOUND: TELEGRAPH KEY)
57.	MEDIUM SHOT early telephone operator as she works at switch board. DISSOLVE TO:	(MUSIC: HELLO HAWAII)
58.	INSERT Early Newsreel Film.	(MUSIC: SILENT FILM THEME)
59.	INSERT KINESCOPE RECORDING OF Kefauver Senate Investigating Committee in action. SUPER: Kefauver Hearings - 1951 DISSOLVE TO:	
60.	INSERT Missile blastoff SUPER: Communication by Satellite August 12, 1960 DISSOLVE TO:	

61. INSERT Echo I Balloon in orbit (animation).

PRESIDENT EISENHOWER'S VOICE OVER

This is President Eisenhower speaking. It is a great personal satisfaction to participate in this first experiment in communication involving the use of the satellite balloon known as Echo...

FADE OUT

FADE IN:

1. INT. BOOKSTORE - DAY MEDIUM SHOT Paperback book racks. Mr. Dale enters the shot.

DR. DALE

Man has not only created vast amount of new knowledge, he has also created the technology to make these new ideas widely available.

He picks up a paperback book.

2. CLOSEUP Bookshelf displaying Aims of Education and Educating the Good Man.

To get answers to our questions, for example, we may pick up an inexpensive paperback book...

Dr. Dale picks up a copy of Aims of Education.

3. CLOSEUP another bookshelf featuring dictionaries and encyclopedias.

...or refer to an encyclopedia.

DISSOLVE TO:

DR. DALE'S VOICE OVER

4. WIDE SHOT computerized library reception counter.

We can store the results of our thinking in many ways...

A man moves to the counter and talks to the librarian.

5. CLOSEUP Computer control as librarian punches up a computer order.

....in a library, on tape, on film...

6. WIDE SHOT counter. In the b.g. a printout machine starts to type out a bibliography

...or in a computer.

7. CLOSEUP print-out machine as it types bibliography

From a computerized library, for example, we can receive...

8. WIDE SHOT counter.

...in a few seconds information that once took weeks to compile.

In the b.g. the librarian takes bibliography out of print-out machine and brings it to the counter.

9. MEDIUM SHOT Bibliography as it is placed on counter.

10. CLOSEUP Bibliography

DISSOLVE TO:

11. MEDIUM SHOT typist as she types	We have machines that provide rapid
12. CLOSEUP typist's copy. She is typing Russian.	language translation.
13. BIG CLOSEUP automatic typewriter as it types out English translation of the Russian.	
DISSOLVE TO:	
14. INSERT animation of Communication Satellite in Orbit.	And we have satellites that permit instantaneous world-wide communication.
DISSOLVE TO:	
15. INT. BOOKSTORE - DAY MEDIUM SHOT Dr. Dale	DR. DALE This technology is already being used for specific purposes; by government, by industry, and by the professions. But we must remember that communication is a two-way process which requires free access to ideas and free exchange of ideas at every level from the personal to the international.
FADE OUT	

FADE INTO	
1. WIDE SHOT press room newsmen are seated in the gallery. Photographers work in the aisles.	
2. WIDE SHOT Kennedy. He is at the podium. The CAMERA ZOOMS slowly in on him.	**PRESIDENT KENNEDY** Good afternoon. I want to take pleasure in welcoming the editor of Izvestia, Mr. Adzhubei, to this presidential press conference. He is, as I said, an editor of a paper which carried our interview last November and he is also a member of the Central Committee and, therefore, combines two hazardous
3. GROUP SHOT audience Mr. and Mrs. Adzhubei are featured in the shot.	professions of politics and journalism... and also Mrs. Adzhubie, who is the daughter of the Chairman. We are glad to have them here to share an ancient American custom. (KENNEDY UNDER TO NARRATOR)
4. MEDIUM SHOT Kennedy	**NARRATOR** The press conference..."an ancient American custom...." Freedom of communication--freedom to listen, to speak and to read and write...a bulwark of the democratic society. In a time of information explosion, free and immediate access to information is a key factor in determining world events.
5. CLOSEUP Kennedy at the podium.	
6. WIDE SHOT audience as a reporter asks a question	**REPORTER** Do these recent manifestations of cordiality between the United States and Russia...I'm speaking specifically of
7. MEDIUM SHOT Kennedy	your hospitality to Mr. Adzhubei...Do these evidences equate in any way
8. WIDE SHOT audience as reporter continues	with an increase or improvement in the prospects for a settlement of such basic issues as Berlin?

9. CLOSEUP Kennedy	**KENNEDY**
	Now, of course, we would like to have a settlement of basic issues which
10. WIDE SHOT Audience as they listen	have divided the Soviet Union and the United States.
11. CLOSEUP Kennedy	We hope that as communications improve, the problems which
12. WIDE SHOT Kennedy and audience	cause tension and danger to the world will lessen.
13. CLOSEUP Kennedy	I believe that any exchange of information, any exchange of views, any cooperation of any kind in these very hazardous times is very useful.
	(KENNEDY UNDER TO NARRATOR)
	NARRATOR
	In a time of information explosion, free
14. WIDE SHOT Kennedy and audience	and immediate access to information is
	a key factor in determining world events.
FADE OUT.	

FADE IN:

1. CLOSEUP Control room
Engineer
He picks up telephone handset.

ENGINEER

This is Chicago briefing. Will all stations check in for this morning's operations briefing? Is Pittsburgh on?

1ST VOICE

Pittsburgh's on.

ENGINEER

Thank you. Is Washington on?

2ND VOICE

Washington's on.

ENGINEER

Thank you. Is Denver on?

3RD VOICE

Denver's on.

ENGINEER

Thank you. Is San Francisco on?

4TH VOICE

San Francisco's on.

ENGINEER

Thank you. We're showing approximately five minutes 'til briefing

The engineer hangs up the telephone

NARRATOR

2. WIDE SHOT Briefing room.
Executives are moving to a conference table in the foreground.
Super: Executive briefing room
United Air Lines, Chicago

At 10:00 a.m. each day, these airline executives meet to review operating conditions and accomplishments for the past twenty-four hours and to discuss the outlook for the current period. The briefing is held for the president and

3. CLOSEUP control room
Engineer
He is holding telephone.

4.	WIDE SHOT briefing room The executives are seated behind microphones at the conference table. A meteorologist enters and moves to the stage in front of the room. Drapes open automatically to reveal a screen containing a weather map projection	operating executives in Chicago, Pittsburgh, Washington, Denver and San Francisco. The briefing is transmitted over a private line telephone system, using two-way conference connections. METEOROLOGIST We've finally had spring move into the upper Mississippi Valley with the passage northward, during the night, of a warm front associated with thunderstorms to the south with temperatures rising up into the high fifties during the night.
5.	CLOSEUP Executive as he listens.	Thunderstorm activity was the heaviest ahead of the cold front.... (METEOROLOGIST UNDER TO NARRATOR)
6.	MEDIUM SHOT Meteorologist and weather projection	NARRATOR The briefing room was designed around the concepts of visual presentation.
7.	MEDIUM SHOT girl at overhead projector as she changes transparency.	Most of the visuals used are overhead
8.	WIDE SHOT Briefing room as meteorologist continues weather briefing	transparencies, although the room is equipped for front projection of 35mm slides, 16mm. sound films and 3¼ X 4 lantern slides.
9.	CLOSEUP quality control panel	Daily operating statistics, displayed
10.	CLOSEUP edge-lighted panels. The CAMERA TILTS down the panel	on edge-lighted plastic panels, are posted each morning at 8 o'clock to
11.	CLOSEUP another panel	provide management with the latest possible information.
12.	WIDE SHOT Meteorologist and screen as the meteorologist continues with weather briefing	

DISSOLVE TO:

13. WIDE SHOT computer room as operator places tape on read-out machine

14. MEDIUM SHOT print-out machine as operator sets up machine and turns it on.

15. CLOSEUP machine as it operates

16. WIDE SHOT briefing room

The briefing room is operated by the statistics department. Its job is to provide busy executives with a maximum amount of information in a minimum amount of time.

It has accomplished this task by establishing one of the fastest statistical libraries in the world.

Information on performance and economic accomplishment that once took thirty days to retrieve, can now be retrieved in thirty minutes

EXECUTIVE

May we have the Pittsburgh report, please?

PITTSBURGH VOICE

Morning. Yesterday in the Eastern Division the performance was 98.1%..... In the Midwest, the performance was only fair with 53 delays, 7 charged to customer service.....

(PITTSBURGH VOICE UNDER)

NARRATOR

Following the weather briefing, Customer Service, Line Maintenance, Engineering and Operations Planning present status reports and discuss problem areas whereever they are located.

17	CLOSEUP executive as he listens	PITTSBURGH VOICE In the Great Lakes region the performance was excellent. There were only eight delays in the region, of which only two
18.	WIDE SHOT briefing room	were charged to Customer Service, and they have nothing of significance to report.
19.	CLOSEUP executive as he listens.	The only thing that I would say is significant is that all the managers have been in Pittsburgh for a meeting, and maybe their assistants have been doing a better job.
20.	WIDE SHOT briefing room	Flight 751 was delayed at Norfolk for 36 minutes due to a stray mule on the field somewhere in the darkness.
21.	CLOSEUP executive as he reacts to the story with a smile.	The trip returned to the blocks until the mule was caught. Passenger reaction was reported good.
22.	WIDE SHOT briefing room	That's all from Pittsburgh.
23.	CLOSEUP executive	1ST EXECUTIVE Buck, may we have the Line Maintenance report, please?
24.	WIDE SHOT briefing room	BUCK'S VOICE OVER Yesterday in line maintenance we had an unusual number of things under the unusual incident category.... (BUCK UNDER TO NARRATOR) NARRATOR Planning for efficiency and for profit is the key idea behind the executive briefing room. Daily contact between operating executives across the country, weather briefing, performance and operating statistics are all part of a plan to contribute to hourly decision making.

25. CLOSEUP executive	In this system, two-way communications is essential.
26. REVERSE ANGLE another executive	
27. WIDE SHOT briefing room	BUCK'S VOICE OVER
28. CLOSEUP executive 29. WIDE SHOT briefing room 30. CLOSEUP executive	....I'd like to ask Ted a question concerning flight 103 yesterday, which was reported in the unusual incidents...concerning the buffet. That was not in the log book. We didn't know about that until this morning and therefore haven't inspected the airplane but I wonder if you have any other information on it that would give us any help on that?
31. WIDE SHOT briefing room	TED'S VOICE OVER
	No, I don't have anything on it other than what's shown in the unusual incidents situation here, and we'll take a little read-out on it and whatever I get, I'll pass on to you. And what else do you have on this aircraft damage at Los Angeles? Did we do it...or whatever?
	BUCK'S VOICE OVER
	No, we did it with a fork lift as we were bringing up a brake disc to the airplane...trying to replace the brake. We struck the airplane with the fork lift.
	TED'S VOICE OVER
	I see, and if we get something on this buffet department, I'll let you know.
	BUCK'S VOICE OVER
	Thank you. That's all from Line Maintenance.
32. CLOSEUP executive	EXECUTIVE
	Will you stand by, please, for the weekly performance review.

33. WIDE SHOT briefing room. The analyst moves behind podium on stage. The curtain opens to reveal performance projection on screen. As the analyst talks, the projections change.	ANALYST For the week of March 28 to April 3, both traffic and performance improved from the previous week..... (ANALYST UNDER TO NARRATOR) NARRATOR The most unique use of the executive briefing room is the transcontinental presentation of the weekly operations analysis.
DISSOLVE TO: 34. MEDIUM SHOT girl as she removes tape from teletype machine.	Each Monday, weekly summary statistics are transmitted by teletype to analysts in San Francisco, Denver, Pittsburgh and Washington.
35. TWO SHOT analysts. The girls enters and gives teletype tape to analyst.	Each analyst plots and brings up to date his set of transparencies.
DISSOLVE TO:	
36. WIDE SHOT briefing room.	Tuesday, following briefing, the briefing room analyst in Chicago presents the
37. CLOSEUP executive	audio commentary on the charts. He talks over the conference phone
38. WIDE SHOT briefing room	circuit while the transparencies are simultaneously projected in all five cities. ANALYST ....cargo lines available ton miles increased by 4% to 3.5 million. The 1.7 million cargo lines ton miles were a 50% increase. Over and out in Chicago.

The curtain closes in front of the screen and the meeting begins to break up. Some of the executives leave the room. Others remain to talk informally.

NARRATOR

The executive briefing room--one of industry's methods of controlling the information explosion...an example of the importance that industry places on rapid dissemination of information.

FADE OUT

FADE IN:

1.	ESTABLISHING SHOT Grant Hospital Super: Grant Hospital Columbus, Ohio	(SOUND: TRAFFIC NOISE, SIREN IN BACKGROUND)
2.	WIDE SHOT Grant Hospital Library Reverse angle medical students and doctors at tables eating lunch. Dr. Stevens moves to slide projector He turns it on, focuses the picture of Dr. Sabin and then moves down the aisle toward the podium. A student asks him a question. He answers it and then moves behind the podium.	NARRATOR Doctors, and other professional groups are faced with an increasing need for rapid dissemination of new--and often critical--information. The problem in medicine, as in many other fields, is to put theory into practice; to get the latest information and research to medical students and to the practicing physician in the field.
3.	CLOSEUP Dr. Stevens.	DR. STEVENS Gentlemen, if any of you have any questions directed to Dr. Sabin in Cincinnati, please write them on a three-by-five card at your table and bring them up to me, and I will relay them back to Dr. Pace at OSU.
4.	CLOSEUP clock showing exactly twelve noon.	
5.	WIDE SHOT WOSU studio. The announcer is standing at a microphone in the b.g. Dr. Pace and Dr. Saslaw are at mikes in the foreground.	ANNOUNCER The Ohio State University Telecommunications Center now brings you a live two-way discussion of medical problems and research between members of the faculty of the Ohio State University, College of Medicine and staffs of up to twelve hospitals in Ohio and West Virginia. Our host and moderator for today's program is Dr. William Pace, Director of the Center for Continuing Medical Education. Dr. Pace.
6.	TWO SHOT Drs. Pace and Saslaw	

7. CLOSEUP Dr. Pace	**DR. PACE** Thank you. Our topic today is Viral Etiology of Malignancy. Our speaker is Dr. Albert B. Sabin, distinguished service professor at the University of Cincinnati..... (DR. PACE UNDER TO NARRATOR)
8. WIDE SHOT WOSU studio	**NARRATOR** Each week during the academic year, the Ohio Medical Education Radio Network broadcasts programs on subjects vital to continuing medical education.
9. MEDIUM SHOT WOSU control room as the engineer threads up and cues a tape recording	A pre-recorded half-hour statement by a leading specialist is repeated each
10. CLOSEUP recorder as engineer completes cuing.	day for one week. The taped statement is followed by a live
11. TWO SHOT Drs. Pace and Saslaw	question-and-answer period between the specialist and his audience. The question and answer period varies because the program is broadcast to a different group of hospitals each day. **DR. PACE** I've invited Dr. Samuel Saslaw to join me here today at WOSU for the discussion period which will follow the presentation by Dr. Sabin. Dr. Saslaw, as you know, is professor of medicine in microbiology at the Ohio State University. I would like to introduce Dr. Sabin at this time.
12. CLOSEUP tape recorder. The engineer turns on the recorder.	**DR. SABIN'S VOICE OVER** Thank you very much. Although no human cancer has as yet proved to be caused by a virus, the search goes on....
DISSOLVE TO:	

13.	MEDIUM SHOT interns at Grant Hospital, Columbus, as they listen to Dr. Sabin. Some of them are eating lunch. One of the interns begins to write out a question.	...because viruses have been proved to cause naturally occurring cancers in lower animals and because naturally occuring..... (DR. SABIN UNDER TO NARRATOR) NARRATOR Each program is directed to twelve hospitals at once.....
14.	CLOSEUP intern as he writes out question. He completes his question and moves toward podium.	...to allow sufficient time for questions from each hospital during the discussion period.
15.	TWO SHOT intern and Dr. Stevens. DISSOLVE TO:	
16.	CLOSEUP WOSU call letters on OMEN map. The camera slowly pulls back to reveal hospitals and radio stations in network. DISSOLVE TO:	(DR. SABIN CONTINUES UNDER) NARRATOR The broadcast from WOSU is sent out by network lines to FM stations near the participating hospitals. The availability of radio makes it uniquely suited for also reaching a widely scattered audience outside the medical centers.
17.	MEDIUM SHOT station wagon as it moves along street. A man is driving. A woman is seated in front passenger area.	
18.	CLOSEUP car radio as hand adjusts volume.	
19.	CLOSEUP driver as he listens to Dr. Sabin.	(SABIN OUT)

20.	TWO SHOT Doctor Patton and Patient. They are seated at a desk. The doctor completes his instructions and dismisses the patient. A nurse enters and calls the doctor's attention to the Sabin braodcast.	NARRATOR This is especially helpful to the practicing physician. His time is limited. He would find it difficult to leave his patients to continue his education at a teaching center, but he must continue to keep abreast of new developments in the medical field.
21.	CLOSEUP radio as Dr. Patton tunes in Sabin broadcast.	(DR. SABIN UP AND THEN UNDER TO NARRATOR) NARRATOR Network broadcasts give him access to teaching physicians and the results of their latest research.
22.	CLOSEUP Dr. Patton	They offer the practicing physician an opportunity to keep up with the information explosion in medicine.
	DISSOLVE TO:	
23.	TWO SHOT Drs. Pace and Saslaw as they listen to Dr. Sabin.	DR. SABIN'S VOICE OVER ...the mechanism of action of these viruses may perhaps prove more helpful in the study of the possible role of viruses in human cancer than the knowledge gained of the facinating phenomena that I've just described to you obtaining in the cancers artificially produced by virologists. Thank you very much.
24.	CLOSEUP Dr. Pace.	DR. PACE Thank you, Dr. Sabin.
25.	INT. DR. SABIN'S OFFICE, CINCINNATI, Ohio. TWO SHOT Drs. Sabin and Schweikart SUPER: Albert B. Sabin, M.D. Children's Hospital Research Foundation Cincinnati, Ohio	DR. PACE'S VOICE OVER Dr. Sabin is at a microphone in his office in Cincinnati along with Dr. Schweikart, our director of communications.

26.	MEDIUM SHOT interns at Grant Hospital as they listen to Dr. Pace.	If you have any questions or any comments, if you will signal in the usual manner I will refer your question to Dr. Sabin in his office.
27.	CLOSEUP Dr. Pace	DR. PACE I would like to check some of our lights now and refer to some of our participating hospitals
28.	CLOSEUP signal board. There are several lights lit.	I see that there is a signal light at Grant. Dr. Stevens?
29.	MEDIUM SHOT interns at Grant Hospital. Dr. Stevens is at the podium. He reads a question from a three-by-five card	DR. STEVENS Dr. Pace, we have a question for Dr. Sabin from Grant Hospital, Columbus, Ohio
30.	CLOSEUP intern. He is the intern that submitted the question	Our question is, "Has there been any evidence of the transmission of cancer....
31.	CLOSEUP Dr. Sabin as he listens to the question.	...from one human being to another, either by experimental or other means? DR. SABIN There have been experimental attempts to transmit cancer to human beings.....
32.	BIG CLOSE UP intern as he listens to Dr. Sabin	....but the results were negative. There are situations, however, in which it may be desirable..... (DR. SABIN UNDER TO NARRATOR)
33.	TWO SHOT Drs. Sabin and Schweikart	NARRATOR Through the medium of radio, the medical profession is bringing under control a part of the tremendous expansion of knowledge in the medical field. This
34.	BCU intern	student has direct access to the wisdom and skill of distinguished teaching physicians.
35.	CLOSEUP Driver as he listens to Dr. Sabin.	And at the turn of a radio knob....

36.	CLOSEUP Dr. Patton as he listens in his office.	...the latest results of laboratory research are disseminated to the practicing physician in the field.
37.	TWO SHOT Sabin and Schweikart as Dr. Sabin concludes his answer	**DR. SABIN** ....and we want to keep them alive because as long as they are alive, there is a chance that maybe next month, next year, they can be saved for good.
	DISSOLVE TO:	
38.	WIDE SHOT Auto-Didactic Lab. Students are working at teaching machines	**NARRATOR** Following a network broadcast, program materials, such as magnetic tapes, slides, outlines and related materials, are stored, catalogued, and made available to doctors and students through the Ohio State University Auto-Didactic Laboratory.
39.	CLOSEUP student as he views slide show on eye injuries.	
40.	MEDIUM SHOT another student as he starts playback of Dr. Sabin's broadcast.	**DR. SABIN'S VOICE OVER** (filtered) ...although no human cancer has as yet proved to be caused by a virus, the search goes on...
41.	CLOSEUP student as he listens.	
	FADE OUT.	

	FADE IN:	
1.	MEDIUM SHOT Dr. Dale. He is standing in front of a rack of technical books.	DR. DALE In government, in industry and in the professions we find many examples of ways in which information may be organized, stored, retrieved and widely disseminated for special purposes.
	The CAMERA PANS INTO a group shot of customers as they shop for books.	DR. DALE'S VOICE OVER But what about the individual? How can he learn to control the vast flood of information surrounding him?
	The CAMERA PANS to a MEDIUM SHOT boy as he shops for paper back books.	How does a child make sense out of the multitude of contradictory, competing, and often persuasive experiences brought about by the information explosion?
	DISSOLVE TO:	
2.	WIDE SHOT Elementary School as children leave for the day	Today the child is overwhelmed with experiences, impressions, and attitudes even before he goes to school.
3.	MEDIUM SHOT children	Formal education will continue to add new ideas, but it must also bring order and perspective and selectivity to what is already present.
4.	WIDE SHOT children. They move toward the camera as they come from school. The CAMERA MOVES in on three boys and PANS with them as they pass.	The school and college must help the individual learn how to sort out the flood of information pouring in from the mass media--to separate the true from the false, the important from the trivial.
	DISSOLVE TO:	
5.	MEDIUM SHOT Richard Dwyer as he arrives at the front porch. He lays down the bat, picks up the evening newspaper and enters the house SUPER: Richard Dwyer, 4th grade, age 9.	RICHARD DWYER'S VOICE OVER We get out at three o'clock and when I come home.....
6.	OVER SHOULDER ANGLE MEDIUM SHOT newspaper with Dwyer in foreground He looks through newspaper and stops at comic section	....I'll read the funnies first, and then I'll read the sport section.

7.	CLOSEUP Dwyer as he reads.	First, I like to see who's in first place and then I look at what the games... who lost and who won and by how many points they won.
8.	OVER SHOULDER ANGLE he leafs through the paper.	My other geography teacher ....she'll say that there was an article in the paper last night and what it was about and that we should have read it.
		DR. DALE'S VOICE OVER
	Tilt to mother as she enters and looks over Dwyer's shoulder at paper	The influence of the teacher on the child's out-of-school media experiences can be significant...the influence of the parent is essential and powerful.
		DWYER'S VOICE OVER
9.	CLOSEUP Mrs. Dwyer's hand as she points to ad in the movie section DISSOLVE TO:	When there's a good movie on, like when there's.... Well, if there's a good war picture I usually go. My mom tells me what movies are good to see...and so I'll go to the movies.
10.	MEDIUM SHOT Dwyer as he enters the living room eating a banana. He moves to TV set and turns it on. Zoom in past Dwyer to show books on shelves in background.	I read Custer's Last Stand and Profiles in Courage and... I really like to read. When you don't have anything to do it's good to do.
	DISSOLVE TO:	(MUSIC: DRAMATIC THEME UP AND UNDER)
11.	THREE SHOT Dwyer, brother and sister They are watching TV. Dwyer is on the floor eating a banana. His sister and brother are on the couch behind him.	Well, I watch Flippo and I watch Walt Disney...and one of my favorite shows is The Man from Uncle....
		DALE'S VOICE OVER
	Zoom in on Dwyer as he stretches out on floor	All media permit a certain amount of choice; and the child must learn to choose wisely, become more discriminating, learn to live in a multiple-image world.
		DWYER'S VOICE OVER
		....I think it's neat..you get three channels and you can watch whatever you want.

	DISSOLVE TO:	(MUSIC: SENTIMENTAL THEME)
12.	WIDE SHOT bedroom Dwyer and his brother are in bed. Dwyer is reading a book while his brother listens to the radio. Mr. Dwyer enters and sits on the bed.	During the night when we go to bed... We have a built-in divider. There's a little hole in it and we set a big ol' radio in there, and so we just listen every night, my brother and I.
		(RADIO TUNING TO NEWSCAST)
13.	CLOSEUP father as he enters and sits on Dwyer's bed.	My dad always wants to know the news so we listen to the news and weather.
		DALE'S VOICE OVER
14.	CLOSEUP Dwyer as he listens to radio.	The individual--parent, child, or teacher--is the final judge and critic in the time of information explosion.
	DISSOLVE TO:	
15.	WIDE SHOT library. Leola Johnson moves to card catalogue and opens drawer.	
16.	CLOSEUP Leola as she looks up book in card catalogue	
	SUPER: Leola Johnson 11th grade, age 15.	LEOLA'S VOICE OVER
17.	CLOSEUP file drawer as Leola's hands search for and find *The French Revolution* by Thomas Carlyle.	Well, uh, my teacher made me do outside reading. If she hadn't made me, I probably wouldn't....I mean, I would have started, but not the type of books that she wanted me to read. Not the real, real, good type of books.
18.	MEDIUM SHOT Leola as she closes drawer and writes down information from card.	She told me "Read it or else you don't get a grade." And, uh, I was really miserable. I was in the seventh grade and she wanted me to read classics. And I sat there and she said, "Well, after the first fifty pages you"ll be all right."
.	The camera pans with her as she walks to the stacks.	
19.	MEDIUM SHOT Leola as she enters row of stacks.	And I found out she was right. And from then on, I read, and I read, and I read. And I think if she hadn't threatened me I never would have read, you know, really good, first class books. And so I'm grateful to her for that.
20.	CLOSEUP bookshelf. Leola enters the shot and selects a book	I read all the time now, and it helps me with all my other lessons.

21.	CLOSEUP book that Leola has selected. It is The French Revolution, by Carlyle. Her hands leaf through the pages.	I learn a whole lot of things from my outside reading that are related to all my other subjects in school. And it helps me understand them more.
22.	CLOSEUP Leola's hand as she selects another book, Napoleon.	And it helps me understand myself more.
23.	MEDIUM SHOT Leola as she moves out of the stacks.	I think that the more you read, the more points of view you get about one subject...the more you really know on that subject. You have to be able to choose what is the truth and what is, uh, not a lie, but what is an exaggeration. The more you learn how to pick out things, the more points of view you get the closer to the truth about the matter you can get.
24.	MEDIUM SHOT Leola as she moves to desk to check out books.	
25.	MEDIUM SHOT Leola. She is lying on couch reading	
26.	CLOSEUP Leola as she reads.	We're surrounded by information that, uh, means...things that are worth knowing, and then things that it wouldn't make any difference if you knew them or not.
	DISSOLVE TO:	
27.	MEDIUM SHOT Leola as she puts a disc on record player.	I like to listen to modern jazz. And, uh, sometimes when my friends come over, I listen to rock and roll. You know, we dance with it.
28.	CLOSEUP Leola as she listens to record.	(MUSIC: CLASSICAL THEME UP AND UNDER) And then I really like classical music. I love Chopin. And, uh, the record that I really like is Beethoven's Sonata Pathetique. (MUSIC UNDER TO DALE) DR. DALE'S VOICE OVER
	DISSOLVE TO:	In a time of information explosion, we must know how media really influence the child's behavior. What does he reject as false or trivial...and what does he remember, and why?
29.	THREE SHOT Leola and her brother and sister. There is a TV set in the foreground. Leola is doing her homework while her brother and sister watch TV.	LEOLA'S VOICE OVER During the time I look at television.... it's sort of strange because I don't really look at television. I listen to it and I read.

30.	TWO SHOT Leola and her brother	...There aren't very many good programs on television anymore. I just watch television for something to do. I bet I couldn't tell you what some of the programs are about that I watch. They just don't stick. They're just there.
31.	CLOSEUP Leola	But then some of the programs I do remember...like that *Judgement at Nuremburg* thing. I'll never forget that as long as I live.
	DISSOLVE TO:	I got started watchin *Issues and Answers* and *Meet the Press* because my mother watched them. I didn't like them at first, but now I like them.
32.	TWO SHOT Leola and her mother. They are sitting at kitchen table eating ice cream.	Sometimes she'd ask me some questions about it. She'd say, "Well, what do you think that means?" Or something like that. And every time she'd ask me a question I'd have to sit there and think about it. It'd just be a casual conversation between my mother and me.
33.	MEDIUM SHOT Leola	
34.	MEDIUM SHOT mother	
	DISSOLVE TO:	I have a girl friend, and she says that the reason she likes to come over and spend the night with me is because no one at her house talks about anything.... And she says, "When I come to your house, I learn more things than, you know, even when I go to school." That made me feel real good because I think that this is one thing my mother's trying to do.
35.	TWO SHOT Leola and her mother They are doing the dishes.	
	The CAMERA PANS to a CLOSEUP of mother	When we were real young, she started helping us to read. She always told us that we should be aware of what's happening around us.
	DISSOLVE TO:	
36.	MEDIUM SHOT Dr. Dale	**Dr. Dale** "...to be aware of what's happening around us..." Today our children learn much of what they know outside the formal school system. They learn through a variety of media and in a variety of settings. Unless teachers understand this they will not be able to help their students make full use of these rich out-of-school experiences.

DISSOLVE TO:

37. MEDIUM SHOT young boy as he examines paperbacks

DALE'S VOICE OVER

Immature, dependent learners should be taught how to become mature, independent thinkers.

The CAMERA ZOOMS in on the boy

They should learn to organize and to make sense out of what they see, hear, and read. But will they learn to cope independently and critically with the world's assult on their senses?

DISSOLVE TO:

38. CLOSEUP Dr. Dale

DR. DALE

We need teachers who are sensitively aware of the nature and impact of the communications revolution...teachers who are deeply concerned about how the modern media of communication are changing education...teachers who share a concern with the communication specialist, the critic and the philosopher.

DISSOLVE TO:

39. WIDE SHOT Marshall McLuhan, I. Keith Tyler, Gilbert Seldes and Edgar Dale
They are seated in a limbo setting

FADE IN:

40. CLOSEUP McLuhan
SUPER: Marshall McLuhan, University of Toronto, Ontario, Canada

MCLUHAN

This is a good time to bring up a point...that when any new form comes into the foreground of things, we naturally look at it through the old stereo. We can't help that. This is normal. And we're still trying to see how well our previous political and educational patterns persist under television.

41. CLOSEUP Seldes.
SUPER: Gilbert Seldes, Annenberg School of Communication, Philadelphia, Penn.

42. CLOSEUP McLuhan

We're just trying to fit the old things into a new form, instead of asking, "What is the new form going to do to all the assumptions we had before?" This is not necessarily good.

43. CLOSEUP Seldes

SELDES

I think all of us here learned to read... and we're here to protect books. But in the books we can read that when the book came in, it was denounced because people began to study from books, and they said, "How can you study from books without the authority of the teacher there?" Now we say, "How can you have television in the school room without the authority of the book?" I see that. But I'm not sure that there doesn't come a point when the vast amount of what we can get from a new media doesn't really, to an extent, make it necessary to think deeply, and it may be hard to think. I'm dubious.

44. CLOSEUP Dale
SUPER: Edgar Dale, Professor of Education, The Ohio State University, Columbus, Ohio

DALE

There is another point here, too. You see, with television or with film, it's moving along at a continuous speed. In other words, you have no way of checking it. With a book, you can check it. You can go back. You've got a kind of record. And we can't assume a person is going to get a video tape, or is going to arrange to have this film re-run in the theatres. So you don't get a chance to check certain of these media. You just have to take it as it comes along.

CAMERA PANS TO:

45. CLOSEUP McLuhan

MCLUHAN

On the other hand, the degree to which--when reading--you are in the hands of an author, the degree to which he merely carries you along for a ride, passively, has almost been by-passed and not discussed by book readers. They have the illusion of being engaged in great private intellectual discovery. Actually, they're going for a ride.

46. CLOSEUP Tyler
SUPER: I. Keith Tyler, Professor of Education, The Ohio State University, Columbus, Ohio

TYLER

I begin to see that we're talking about the importance of whoever the individual is who is in front of these media. He's got to be active in his response. This suggests something that Seldes likes to point out...that we ought to be doing something in classrooms at all levels to make more discriminating consumers out of people so that they don't just look at this instrument, but that they react positively to it.

CAMERA PANS TO:

47. MEDIUM CLOSE SHOT Seldes

SELDES

48. CLOSEUP Seldes

I want a race of critics. At what age they should begin? I don't know. But I think you can't begin too early.

DISSOLVE TO:

(MUSIC: OPTIMISTIC THEME BUILDING TO BIG CLOSE)

49. CLOSEUP young boy watching television

DISSOLVE TO:

50. CLOSEUP Dwyer listening to radio

DISSOLVE TO:

51. CLOSEUP Leola reading a book

DISSOLVE TO:

52. WIDE SHOT boy studying in den CAMERA ZOOMS IN on him.

DISSOLVE TO:

(MUSIC: THEME RISES TO BIG CLOSE AND THEN OUT)

53. BIG CLOSEUP boy watching television

FADE OUT:

FADE IN:

54. Title Card # 4

Producer
    Robert W. Wagner
Associate Producers
    Carl V. Clausen
    David L Parker
    Hubert L. Smith
Supervising Film Editor
    Richard B. Long

DISSOLVE TO:

55. Title Card # 5

Cinematography
    John L. Friend
    Richard Sherman
Editing
    John A. Werner
    Thomas L. Snider
Sound
    William R. Buccalo
    Richard B. Long
    William B. Finan
Business Management
    William A. Drake

FADE OUT.

"THE PROCESS OF COMMUNICATION"

One of
A Series of Motion Picture Documents on
Communication Theory and
the New Educational Media

Prepared for the Department of Health, Education and Welfare
and the U.S. Office of Education under terms of Grant B-131-A
Principle Investigator: Robert W. Wagner

Prepared by the Motion Picture Division
The Department of Photography
The Ohio State University

Final Script
November, 1966

"The Process of Communication"

Produced under a grant from the Department of Health, Education, and Welfare, and the U.S. Office of Education, by the Department of Photography of the Ohio State University.

Producer	Robert W. Wagner
Associate Producers	Hubert Smith Carl Clausen David Parker
Supervising Editor	Richard Long
Film Editors	John Werner Thomas Snider Emory Meadows
Cinematography	John Friend Richard Sherman
Sound	John Werner Richard Long William Buccalo William Finan
Business Manager	William Drake
Production Assistants	John Delbis Margaret Andrews Judy Gill June James
Art	Kay Baughman
Narrator	William Steis

Participants: Dr. George Gerbner, Dean, Annenberg School of Communication, University of Pennsylvania, Philadelphia; Dr. John A. Ramseyer, Director, School of Education, the Ohio State University, Columbus, Ohio; Dr. Bert Y. Kersh, Associate Director, Teaching Research Division, Oregon State System of Higher Education, Monmouth, Oregon; Dr. Lawrence M. Stolurow, Professor of Psychology, University of Illinois Urbana, Illinois; Dr. Elizabeth Lyman, PLATO Research, University of Illinois; Harvey Gelder, Secondary School Science Teacher, and PLATO Programmer, University of Illinois; Dr. Donald L. Bitzer, PLATO Research, University of Illinois; William Oberteuffer, Science Teacher, John Marshall High School, Portland, Oregon.

Consultants: Dr. Franklin Knower, Professor, Dept. of Speech, the Ohio State University; Dr. James Finn, Professor of Education, the University of Southern California; Dr. Edgar Dale, Professor of Education, the Ohio State University; Dr. Kenneth Norberg, Professor of Education, Sacramento State University; Dr. I. Keith Tyler, Professor of Education, the Ohio State University; Dr. Charles Hoban, Professor of Education, the University of Pennsylvania.

FADE IN:

TITLE CARD #1

U.S. Department of Health,
Education and Welfare
Office of Education
Division of Educational Research
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DISSOLVE TO:

TITLE CARD #2

The Process of Communication

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produced by
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Pursuant to a contract with the U.S. Office of
Education under the provisions of Title VII of
the National Defense Education Act.

Principal Investigator: Robert W. Wagner

FADE OUT.

Abstract animation segments.

NARRATOR

We move in a world of symbols,
statements, and events.
(SOUND EFFECTS)
The things around us. . .
and those inside us. . .
come and go as perceptions, thoughts,
ideas, and messages. . .
We are engaged in communication
only when we inter-act through
messages.
To some, communication is an attempt
to move a bit of information from
one place. . .
. . .to another. For some, it means
putting. . .
. . .what was here. . .over here.
By these standards, a successful
message is one that is received in
much the same form it was sent.
This approach places emphasis on the
adequacy of the message sent. . .
. . .and the quantity and accuracy
of information received.

But the adequacy of the message can be affected in many ways -

Is it accurate?

Is it complete?

Is it understandable to the potential receiver?

Even a simple message may run into trouble if it is transmitted by the wrong medium. . .or altered by physical or psychological interference, or "noise".

All of these factors can and do affect the quantity of information received, but, more importantly, they often affect its accuracy. . .

The job of the teacher has always been to formulate adequate messages and transmit them efficiently to the student. Through training and experience, this process is refined and improved. . .

Traditionally, this improvement is the result of the teacher's reaction to response or 'feedback' from the student. By testing and observing the quantity and accuracy of information fed back by the student, the teacher judges the adequacy of his messages. He can determine what things were lost. . .or added, and if these are important enough, he may alter the message and send it again. Sometimes this will result in greater clarity, sometimes greater confusion.

In this very decision, it is acknowledged that, in fact, communication is more than a simple transfer of information . . .every message is intended to bring about a change. . .to have some kind of effect.

The sender displays intent by the very act of making a conscious message.

The intent is to make the receiver feel or act in certain ways.

To a great extent, the degree to which the effect matches intent is determined by the adequacy of the message. . .

the efficiency of its transmission. . .

and the quantity and accuracy of

information conveyed. . .

The effect of a message may be

judged by feedback. . .and the chances

of improving communication are,

therefore, greatest when feedback is a

planned, . .

and permanent part of the communications system.

FADE OUT

1. MS Gerbner.

It is said that communication is interaction through messages. That's a good start. I produce a message a statement, as I am doing right now, which is some pattern of signs and symbols that represent other things - that stand for experiences, ideas, events, things we have learned to associate with these signs and symbols, things we say these messages are about.

Through communication we learn to represent what is, what is important, and what is right - which is a shorthand way of saying that we learn about existence, about order and priorities, and about points of view. This leads me to suggest that in every communication and communication situation we can try to identify these three things:

2. CU chart.

1. First - some assumptions about the nature of things and the nature of the communication process itself.

2. A context or a sequence or an order in which messages and people and other elements of the communication situation are organized.

3. A point of view or points of view from which the subject and the occasion and the process itself are approached.

4. The fourth element which we have identified earlier is, of course, the element of reciprocity, or feedback, as part of the process.

3. CU Gerbner.

This reciprocity, or feedback is an important element of communication and one which is often difficult to achieve. When we exchange messages one-to-one and face to face, there is ample opportunity for feedback, reciprocity. When it is one communicating to many - as in speaking to a group - reciprocity may still be there but in a more indirect more generalized less individual form. Finally, when we use a technological medium or mass communication, we can send messages across previous boundaries of time and space and even culture, but at the price, usually, of immediate feedback. Then at least we try to imagine or simulate the response so that we can improve the communication. As we shall see, there are many ways to build reciprocity even into remote communication situations.

4. MS Gerbner.	These four elements are often interrelated. If we assume that the things to be communicated are mostly facts and skills which are well known, and the rules of the process are clear cut, then the context is likely to be highly organized, fairly rigid, and the point of view usually taken for granted. Industrial personnel programs - the training of airline hostesses for example may be such a communication situation. Message content is fixed, the range of decisions is limited, the presentation is direct, and feedback is tolerated but not necessarily encouraged.
5. MCU Gerbner.	Another example might be the teaching of military tactics, where the range of decision making is much broader, the rules of the game are still clearly outlined, the point of view firmly fixed, and the objective taken for granted. This is a more complex situation in which the presentation of the message is accomplished with a multiple media system backed up by carefully prepared contextual and situational organization. In both industry training and military programs a very complete series of messages primarily involving skills and information is transmitted with high efficiency in a situation that demands positive feedback within well defined limits.

FADE IN	**NARRATOR:**
1. LS building.	Each year, fourteen hundred young women graduate from this educational center located thirty minutes from Chicago's downtown loop.
2. MS Training Center (sign "United Airlines Education and Training Center")	It takes five and a half weeks to train a stewardess. . .
3. LS Classroom from back, teacher front of room with jet plane model.	. . .the objective is to provide passengers with uniform service on as many as six hundred daily flights. **TEACHER** As you learned yesterday in the DC-8, you learned the 'forward' part of the airplane was this part.
4. CU 720 Model Forward section.	**NARRATOR:** The media used includes models, mock-ups, films, and simple demonstrations.
5. MS student reaction.	
6. CU 720 model.	**TEACHER:** Now, this is the main cabin door where the. . .
7. CU single student.	. . .passengers for first class will be entering the aircraft. As they walk in on. . .
8. LS classroom from back.	. . .the Boeing, if they kept walking straight, they'd walk directly into the first class coatroom. There is one for first class on the Boeing. . .

	NARRATOR: Training fourteen hundred people a year to perform certain standard functions in certain standard ways requires message systems that are fixed and standardized.
9. MLS Full-Scale cabin mock-up, class in foreground.	**TEACHER:** What do you suppose the next course on this. . .
	STUDENT: Desert. . .
	TEACHER: Desert? What would come before desert?
	SEVERAL: Coffee. . .
10. CU teacher. (holds up picture of tray)	**TEACHER:** Coffee. . . They haven't needed it up to this point because they had wine to drink with their dinners or water if they requested it.
11. MS Interior cabin mock-up (girl is serving desert)	**SERVER:** Care for desert?
	PASSENGER: Yes, please.

	SERVER: I have a lemon tart or I have fruit. PASSENGER: I'll have some lemon tart. SERVER: Lemon tart?
12. CU student reaction.	NARRATOR: Skills training involves transfer of information from teacher to student. The curriculum, with slight modifications, is the same from year to year.
13. MS Interior cabin mock-up door to cockpit (one girl enters holding oxygen mask - another picks up intercom)	SPEAKER: Good morning, we are delighted to have you aboard our DC-8 jet mainliner. This aircraft is pressurized for your comfort. . .
14. MCU passengers seated oxygen mask held in foreground.	. . .should there be a sudden loss of cabin pressure. . .
15. Master shot.	. . .oxygen masks will be released automatically. They will appear above. . .
16. CU student reaction.	. . .your seat. Immediately extinguish cigars and cigarettes.
17. MS students clustered around stewardess-instructor.	INSTRUCTOR: Today we're going to be talking about the stewardess kit which you will find on board every airplane.
18. CU instructor.	One of the items that we have in the kit. . .
19. CU kit.	. . .is. . .

20. CU instructor.

. . .for the eye. Passenger may want to use this if he has something in his eye, or, if he complains that his vision is blurred.

NARRATOR:

In a training situation where skills are standardized, messages are also generally standardized. They move primarily in one direction and are expected to produce standard results. Much education depends upon the successful communication of skills information - on simple messages transmitted by one or more media, to receivers who later feed back their responses on tests and performance.

Fade out.

1. MS Sign (U.S. Army Fort Leavenworth, Kansas). 2. MS sign (James Franklin Bell Hall) PAN to Sgt. Major who salutes two officers.	**NARRATOR:** At the Army Command and General Staff College, over 1200 American and Allied officers receive the advanced military education mandatory before promotion to highest rank. Today's problem requires a command decision for moving troops across a river.
DISSOLVE TO	The instructor begins by laying a foundation of fundamentals.
3. Extreme LS back of classroom. Lights on projector. PAN revealing 16mm projector.	**INSTRUCTOR:** The first thing we need to know is that there are three types of river crossing (PAUSE) operations. Here they are. . .the second two: 'hasty' and 'deliberate' are fairly easy to understand. The first one gives you trouble.
	NARRATOR: Instructors are chosen for ability to teach well in addition to knowledge of the subject area. In many cases, lessons are written by one officer and presented by another.
4. MS artist working.	These lesson 'authors' have a variety of support services to draw upon.

5. MS officer enters.	OFFICER:
	(Off) Hello, Mrs. Pepper.
	ARTIST:
	Hello, how are you?
	OFFICER:
	Fine, thank you. I have a little problem that I hope you can help me out.
6. CU officer.	With the vu-graphs we've been using, I just haven't been able to make my teaching point.
7. CU reaction artist.	I've come up. . .
8. CU officer.	. . . with this sketch that I think will solve the problem, but within this sketch, I'm having other problems. And, I hope that you can help me solve these.
9. MS officer and artist.	NARRATOR:
	Messages developed by the 'author'
10. CU artwork.	in cooperation with audio-visual specialists are delivered in the classroom in a multiple media approach. A rear view mirror projection screen is often used.
11. MS instructor at podium.	INSTRUCTOR:
	The corps gives the division an area that it must have - it, the corps must have, to accomplish its mission.

12. MLS Instructor and rear projection screen.	INSTRUCTOR: The division boundaries are here and here - lateral boundaries. The space along the river from this lateral boundary to this lateral boundary is a 'crossing front', as a matter of fact, this is a 'division crossing front'.
13 MS black-lite board (instructor enters).	NARRATOR: Maps, drawn with special chalk, glow in a variety of colors under ultra-violet light.
lights go out	Messages on film and filmstrip are loaded before class, for immediate
14. MS PAN instructor out of black and back to podium.	accessibility at the point they are needed in the presentation.
15. ECU podium control panel.	The instructor controls room lights and projector operation from a panel on his podium.
16. MS Instructor at podium.	INSTRUCTOR: . . .the first thing you will see is the M-one thirteen armored personnel carrier going thru its amphibious tests
PAN to screen	at Fort Knox. This carrier weighs about twenty-three thousand pounds combat-loaded.
	NARRATOR: For this lesson on river-crossing operations, messages are presented through a number of media, or channels

	to produce a complete and realistic background for decision-making.
17. LS class reaction.	INSTRUCTOR:
18. LS projector lighting (room lights go out)	Before we begin the planning. . .
19. EUC podium control panel (lights are punched out and slide projector changer punched).	. . .I want to familiarize yourself with the terrain and show you some slides which co-ordinate the crossing area. . .
20 MLS podium and screen.	. . .with the picture on the ground. The 52nd Mechanized Division is going to use part of this area to cross its forces. Note when it crosses, elements that cross the river here will actually be operating in this direction will have to make a right turn.
Slide changes.	Now, the next slide. . .
	NARRATOR:
	The officers view terrain from eye-level in pictures. . .
21. MLS magnetic map.	. . .and topographically on maps. In this teaching situation, the 'author' supplied the instructor with a highly-organized plan of presentation. Through the use of multiple media, the instructor has given his students all the information they will need to make a difficult command decision. Thus far, there has been one-way communication - from instructor to student, sender to

(He pushes the map into the wall).

22. CU Asian Officer reation.

23. MCU officer working over map.

24. MS students and instructor.

25. MS Venezuelan and Vietnamese Officers consulting.

26. MCU officer working.

27. MCU Korean officer reading.

28. Dissolve to Two-Shot of author working with artist.

29. Dissolve to MS stage of large auditorium with instructor at lectern.

30. Wide Shot of auditorium as two images are brought up on screen from rear projector.

31. MLS officers in the auditorium.

32 Dissolve to MS Negro officer and another working.

FADE OUT.

receiver. Now, the lesson moves to a second phase - active, organized feedback in the form of student solutions to the problem presented.

(BACKGROUND SOUNDS)

NARRATOR:

Will these men make the right decisions when time is short and pressure is greatest?

To insure that they do, the Army Command and General Staff College. . .

. . .carefully designs its messages. . .

. . .chooses its best communicators as instructors. . .

. . .and uses a variety of media to transmit messages. . .

. . .in large group instruction. . .

Finally, organized, active feedback is demanded and each step of the communication process is evaluated.

MS Gerbner.	**GERBNER:** The process of communication, if very complex, may often be studied best through simulation of the real situation. The assumption is that the "things out there" to be communicated are not primarily facts or even only skills but ways of tackling a very wide variety of educational and teaching problems. The context becomes more complex and flexible, and interaction and reciprocity become an intimate part of the process. The point of view is not that the answers are known and must only be learned, but that they must be found, they must be developed in and through the process of communication. The simulated environment as seen in some teachers and administrators training enhances the process of interaction, and the variety of media and communication networks employed demand involvement with people, situations, problems, and with the process of communication itself.
1. LS classroom (instructor enters) (Superimpose "The Ohio State University")	**NARRATOR:** The University Council For Educational Administration offers training to school administrators with carefully planned realistic simulation of the school situation. First, a context is created. . .
(Superimpose "John Ramseyer, Director, School of Education").	**RAMSEYER:** . . .During the next three weeks you are going to act as if you are either a business manager or a secondary school principal in the Jefferson School District in the State of Lafayette

	Actually, Jefferson School District and the State of Lafayette do not exist, but we have prepared, previous to your coming, materials which will help you to understand the problems of this so-called 'simulated' district.
2. MS classroom darkened 16mm projector running.	There will be a film which depicts the actual working conditions in the school itself.
3. CU filmstrip projector.	In addition, to that, you will be shown a filmstrip. . .
4. CU filmstrip pictures town of Jefferson.	. . .which depicts the situation in the Jefferson School District. This will be a picture of a portion of the community. It will give you an indication of the kind of living conditions in the district. . .
5. CU filmstrip projector.	
6. CU filmstrip pictures Jefferson Senior High.	NARRATOR: Another filmstrip presents scenes of every school in the Jefferson District. All this prepares the administrators for their roles in message systems that would actually confront a school principal. This conscious approach to the complexities of communication makes the participants aware of their functions in message-making and receiving, and, their role in the process of communication both in the school and the community.

7. MS Negro working at desk.	**RAMSEYER:** And, during the time of your working, you will have. . .
8. CU In-Basket materials ("Jefferson Staff Handbook", "District Policies", "Jefferson School Community")	. . .a set of materials. . .
9. MS Negro working at desk.	. . .which we call 'in-baskets' that will be provided for you in the in-baskets that you have on your desks, now, these are problems. Business managers will have approximately 30, the secondary school principals will have some 20 of these problems to solve. We will utilize the simulated . . . . materials. . . . .
Zoom back to LS (includes man with tape recorder)	in the solution of these problems. After this has been done, we'll discuss the solutions that you have made and actually see how principals and business managers in the Jefferson School perform.
10. CU tape recorder (man starts it)	**VOICE ON TAPE** Mr. Jones, there's a student out here who says there's been an accident in the chemistry lab. Jack Smith, you know, Marian Smith's boy may have been injured by some kind of explosion. William Haines, a student teacher from Lafayette University was in charge of the lab. I guess this is his first day of student teaching. Mr. Anthony was out of the room at the time and Mr. Morehead is trying very hard to reach him. What do you want to do?
11. LS class.	
12. CU tape recorder (it is stopped)	**NARRATOR:** In solving these problems, the administrators must produce messages

13. LS class.	in the form of written decisions. They become aware of the many forms of
14. CU paper ("Immediately went to chem lab to see if help needed")	feedback each message they send or receive may create in the school community about them.
15. LS class.	Watch how these administrators
16. LS discussion set-up.	analyse a communications problem.
	LEADER: Now let's take a look at Item 17. This in-basket item involves a memo sent to your assistant who in turn referred it to you. This involves a teacher excusing youngsters from another class to do makeup work for her. In looking at this, what is the nature of the real problem here? Is this a policy problem, is it a human relations problem, or is it a communications problem? OLDER MAN: Well, Doctor Hack, it seems to me like this is a simple communications problem. . .
17. CU papers in hands.	. . .I think this is one of those things that you have to. . .
18. LS discussion group.	. . .you can do it right now and you'd better do it right now cause you're gonna have to pay this bill sometime so why delay it when it's a simple communications problem? Now, I think this is the answer to it. Later on, maybe you might talk to both Mrs. Berringer and the art teacher.

LEADER:

You feel, then, to take some immediate action on this?

OLDER MAN:

I think this ought to be done right now.

LEADER:

Policy level.

OLDER MAN:

Policy level.

LEADER:

Okay.

YOUNGER MAN:

I can't agree with him, Doctor Hack. I think certainly Fred's right, there might be a policy or rules stated, but I can't see where on the first day you're going to send a note or haul a teacher in and say, 'Now, look, the rule book says this. You do it.' I think this is more than just a problem of dismissing students from class. It's a problem in staff relationships, in human relationships, and you're on the job the first day. . .

Dissolve to:

19. CU leader reaction.

OLDER MAN:

Now, it seems to me that most teachers, the good ones anyway. . .

20. LS discussion group.

. . .take cognizance of these rules and follow them. Now this is what I'm saying. You've gotta tighten this ship a little bit, because. . .

	YOUNGER MAN:
	Are you going to tighten it or are you going to help the teachers to tighten it? This is the point I'm getting at. Now I know you're the 'boss man' and this is the point you keep bringing up. You're the boss and this is a fact. You've been appointed and it's your job and you've got decisions to make. But, are you going to make all these decisions alone?
	OLDER MAN:
	No, I don't mean this at all, Norm and there you're putting words in my mouth that I hadn't said. I don't mean. . .
21 CU leader smile reaction.	. . .that you're going to do this with every item in your basket. . .
22. LS discussion group.	. . .you couldn't possibly. But, I think this is one that you can dispense with. You can get this done today and you can forget about delaying the action because it's spelled out so specifically that these teachers ought to have done this before anyway.
	NARRATOR:
	These administrators have been able to sharpen their understanding of their roles in a message system by carrying out activities in a realistic context simulated by a variety of media and by
Fade out.	active, face-to-face feedback.

1. Fade in LS classroom. (Superimpose "The University of Oregon, Monmouth, Oregon")	NARRATOR: In this school of education, teachers learn communication skills by interacting with media devices that simulate actual classroom situations.
2. CU background material on "Bob".	This student teacher is studying printed background materials on the youngsters she will meet in a simulated classroom.
3. MS Professor Bert Y. Kersh.	KERSH: Simulation is a relatively new technique in training teachers. Computer simulation is not appropriate in this case

	because we want to confront the teacher with an actual classroom situation as nearly as possible. We want to try to teach the student teacher some technique of identifying cues that are. . . normally a teacher doesn't learn until she's been in the classroom. And, we are also interested in trying to develop some response skills, some actual teaching techniques. So, this requires that we present the teacher with an actual scene that looks very much like that which a teacher faces in an actual classroom. Now, in Oregon, we've been developing a technique we call 'classroom simulation' which presents a single sixth grade classroom which we've named Mr. Land's sixth grade.
4. LS classroom with "Edling Simulator."	The unique feature of this simulation technique is that it uses a variety of instructional media.
	INSTRUCTOR:
	Today now we want to go through some slide pictures of what this class will actually look like. As you see on the screen here, we have projected a typical classroom scene in Mr. Land's classroom. You can see the children are not always in their seats. But, we'll go through this a little slower so that you can begin to identify each one of the youngsters.
5. MCU instructor and slide screen.	This is Dan. Dan's the rugged individualist of the class. Next to him. . .
6. MS reverse class reaction.	. . .is Greg, one of the leaders of the class. Over here. . .
7. MCU instructor and slide screen.	. . .across the aisle is Bob. Let's get a closer look at Bob.

(changes slide to CU of Bob)	Bob is your natural leader of the class, but he has difficulty with social problems in getting along with the other students.
8. MS reaction students take notes.	He's still accepted and looked up to by all the other members of the class.
9. MCU instructor and slide screen.	He's a rather good student.
10. Over shoulder to 8mm cartridge projector.	**NARRATOR:** After assimilating background material on the mythical sixth grade class, the student teacher first meets the class on the screen of an eight-millimeter projector. Meeting a class for the first time can be difficult. Simulation provides a valuable and revealing transitional experience.
(film starts)	**"MR. LAND"** Class, this is our student teacher for the coming year. I'll let her introduce herself so you can get acquainted. Go right ahead, the class is all yours. . .
	GIRL: Good. . .good morning, class. I'm Miss Grove and I'll be working with you this term. We'll be breaking up into groups and Mr. Land will work with you part of the time and I'll work with you the other portion. I think we'll have a very good term. No fights, no spitballs, no shuffling in the halls, just good, studious students. . .

11. MS Instructor and girl student.	NARRATOR: In a situation that is even more realistic, the student teacher actually experiences feedback in response to her message. INSTRUCTOR: Alright, this time Mary Lee, the class is still divided into three committees. And this is the third committee. They're in the back of the building near the bulletin board. Keith is playing the role of a dictator and he has his henchmen on each side of him. Bob is an accused rebel and they're rehearsing their part for the play. Are you. . .ready?
12. CU student.	
13. MS rear projection screen from front (student enters and stands facing screen).	NARRATOR: She faces a large screen.
14. MS bank of 16mm projectors.	Behind it are projectors loaded with specially prepared films.
15. CU projector remote controls.	The instructor starts a "cue" or "stimulus" film.
16. MS bank of projectors (one begins to roll).	
17. Over shoulder to screen.	KEITH: (On Film) You're calling me a dictator. Why do you call me a dictator?
18. Full-Shot screen.	BOB: Because you are.

	KEITH: But I was elected by the people. Doesn't that clear me?
	BOB: (TURNING TO FACE STUDENT) How can he be a dictator if he was elected by the people?
19. Over should to screen.	**STUDENT:** Unh, boys, don't you think you ought to go on with the play practice now and I'll talk to you about this later.
20. CU projector remote controls.	
21. MS projectors (a second one begins to roll)	**NARRATOR:** Another film presents realistic feedback to her response to the situation.
22. Full shot screen (Bob shrugs and turns his back on the student).	**KEITH:** Look, Somiano, I've been patient with you long enough. You go out of this country and stay out - or else!
23. Over shoulder to screen (she exits).	
24. MS instructor (she enters)	**INSTRUCTOR:** What did you see here, Mary Lee?
	STUDENT: Well, Bob was trying to put me on the spot. He was asking a question that he obviously knew I just couldn't answer off the top of my head.

INSTRUCTOR:

And you felt this was disrupting their play practice?

STUDENT:

Yes.

INSTRUCTOR:

25. CU student.

Is there any other way you might handle this situation?

STUDENT:

Well, the boys might discuss this among themselves and try to figure out the answer among them.

INSTRUCTOR:

Alright, would you like to try it this way?

26. MS Instructor and student (she exits).

STUDENT:

Yes.

27. MS screen in black (she enters).

KEITH:

(On Film) You're calling me a dictator, why do you call me a dictator?

BOB:

Because you are.

KEITH:

But I was elected by the people, doesn't that clear me?

BOB:

(TURNING) How can he be a dictator if he was elected by the people?

STUDENT:

Do any of you boys know what a dictator is? Why don't you talk about it here with me and let's try and find out what it is.

28. CU projector remote controls.

NARRATOR:

This time, different response. . .

29 MS projectors (a third rolls).

30. Full shot screen.

CHILD:

Ray rafee about him.

CHILD 2:

He doesn't let anyone else be elected.

31 MS student walks to instructor.

INSTRUCTOR:

How do you feel about this response now?

STUDENT:

Well, I think it was a lot better this time.

32. CU student.

NARRATOR:

Before she actually faces her first class, this student teacher, through simulation materials and techniques, she has experienced realistic teaching - learning situations that demand feedback. And she may, by these methods acquire understandings of the communication process that might take years to develop in service.

33. MS instructor and student.

INSTRUCTOR:

Alright. . .
. . .let's go on now to the next situation.

34. MS Bert Kersh
(Super title "Bert Y. Kersh"
end title).

KERSH:

We've developed it primarily as a technique for training teachers. But, it has a great variety of applications in many other fields. Its usefulness is not limited to instruction. I think, obviously, it's potentially an extremely important and valuable research tool.

Fade out.

MS Gerbner.

GERBNER:

The study of the process of communication has led to attempts to measure the response part of reciprocity, and to use it to develop and correct the response itself on an individual basis. The assumption is that active, individualized interaction leads not only to finding correct answers, but, even more importantly, to the learning of discovery and of problem solving, as built-in parts of the communication process. This leads to a context which depends on man-machine interaction to accomplish the goals of the process. Why man-machine interaction? Because the step-by-step discovery process demands individual detailed attention and time and precision of the kind machines can give best. Feedback is active and individual and interaction is direct and immediate, although reciprocity is limited by the capability of the machine and the nature of the program.

1. MLS computer-room doorway (student appears) Superimpose SOCRATES.

STUDENT:

Good morning!

OPERATOR:

Hello!

STUDENT:

Elizabeth Moody. . .?

OPERATOR:

Okay, Elizabeth.

2. MS card-reader.

NARRATOR:

At the University of Illinois, a

3. CU student.

4. Extreme CU switches.

computer-based teaching machine called

5. CU student.	Socrates is a complete teaching-learning system. It is also a model of every step in the process of communication.
6. LS student station room and auto-tutors.	A computer generates a signal that automatically advances the lesson to the proper frame.
7. CU auto-tutor. Dissolve to	
8. CU A-T lid raised. Dissolve to	
9. CU A-T	
10. CU typewriter (Elizabeth Moody, go to #4)	NARRATOR: Simultaneously, the student receives a booth assignment.
11. MCU student at door.	OPERATOR: You're on number four today.
12. CU student.	STUDENT: Okay.
13. CU memory disc.	NARRATOR: This memory disc contains thousands of bits of information about each student: test profiles, personality data, and previous responses to the lesson. Each

	time a student presses a button, a feedback signal is generated to the memory disc and to the computer.
14. LS student station room.	In the fraction of a second it takes the lesson to advance, the memory disc
15. ECU student reaction.	is consulted, a decision is made on
16. ECU A-T buttons.	the basis of memory data, and a new message appears before the student.
17. ECU memory disc reading.	The system has been designed to
18. ECU student reaction.	accomodate individual differences in
Dissolve to	the learners.
19. MS Lawrence Stolurow (Superimpose "Lawrence Stolurow")	STOLUROW: Now a teacher normally will teach according to a particular pattern. She has a way of presenting materials she likes - she uses it - she finds after using it that there are a couple of kids that didn't get the point. So, she gives the ones who did,some work to do and takes the other ones aside and works with them on an individualized basis and probably repeats some of the things she did before, maybe makes some modifications in procedure. But still she's treating a group. A smaller group to be sure, but it's still a group of 2 or 3 or maybe 4 kids. Now, it's possible with a computer-based system to have in effect a separate teacher for
20. LS student station room.	every one of those children. What you can do is program the computer in such a way that you take into account the individual test profile of the student in terms of aptitude and then what you can do is to. . .

21. CU memory disc.	. . .sequence the material to fit that. . .
22. ECU student.	. . .pattern so you get a match in terms of concepts and ideas that the student can master.
23. MCU Stolurow.	But, it will be doing this simultaneously for 50 or 100 or whatever number of students are working at the individual stations. . .all under the control of the single equipment. But, we will also make one further jump beyond that; that is, we will be dealing with a teacher who is keeping in mind while making decisions, all of these test scores that I've mentioned plus the responses the students have made to the material that is being used in the instruction.
24. LS student station room.	We developed the system because we were concerned about the whole problem of individual differences and the fact that in the psychology of individual differences, there's a great deal of information revealing the significance of these differences. . .
25. CU Stolurow.	. . .in terms of general performance. But at no time in the history of education has this kind of information actually been infused into the practices of teachers in a school setting. . . except in the very severe cases of remediation.
26. CU memory disc.	Today, we wait til a great big crisis occurs and the child's already out of hand before we start dealing with the problem. We can detect the problem earlier. . .
27. LS Plato Computer room (girl loads tapes).	. . .and hopefully head off some in this way. So, the feeling that I have is that the best way we can make progress is to demonstrate that the systems can not only work, but can do a good job - and then get more and more teachers involved.

28. MCU girl sits.	**NARRATOR:** Leslie Morgan is a teacher. She taught in the elementary grades for
29. MS Angle girl works switches (Superimpose PLATO)	three years. Now she operates and writes programs for Plato, another computer-based teaching machine at the University of Illinois.
30. CU sheet in typewriter ("What program?")	
31. MS angle she types answer.	
32. CU sheet ("ILLRES")	
33. MS rear - she slides in.	**NARRATOR:** One reel of computer tape holds the lesson to be taught.
34. CU spinning reel.	Another records each student response for later evaluation. Thus, like the
35. CU sheet (ILLRES loaded, type message)	Socrates operation, a complete message-generating, feedback, and message-
36. MS front.	receiving system is present in Plato.
37. CU sheet (she types "Oct. 13")	
38. MS front tapes spin BG.	
39. CU acetate sheet holding slides.	Lesson material is stored on hundreds of slides which the computer scans in a millionth of a second.

40. MS Woman loads slides.	
41. Extreme LS student station room.	Students view the lesson slides on television monitors. Additional material may be presented on cartridge-loaded eight-millimeter film units mounted above each cubicle.
42. MS cubicle showing keyset and TV screen.	The student responds by punching a keyboard. The screen reads, 'This is REPLAB. It is your servant and will do only what you tell it to do'.
43. CU child reverse working program.	The student elects to have the computer generate a message via eight millimeter film..
44. CU screen ("what do you want to do?")	
45. CU child.	
46. CU keyset (elects film)	
47. CU eight millimeter projector.	
48. CU child raises eyes.	
49. CU full screen film experimental problem ("why does bar bend and then straighten out?").	
50. CU child.	
51. CU full shot screen of demo.	
52. CU child.	In this 'inquiry' program, the student enters a dialogue with the computer. To solve the problem, he must request and organize appropriate information.
53. MS keyset and screen.	
54. CU screen ("what do you want to do?")	

55. CU keyset (Punch #4 "Check Properties")	
56. CU screen (list of properties)	
57. CU keyset (#3 - boiling point)	
58. CU screen (electro-typewriter "Freezes at 32°F")	
59. CU child.	NARRATOR: When the computer asks a question, such as number three on the density of Kerosene, the student is expected to use the program to assemble information to find the answer.
60. CU screen (Question, "What is the density of Kerosene?")	
61. CU child.	
62. CU screen (the PLATO lab)	
63. CU keyset (#3 "Consult density table")	However, if he attempts to circumvent the 'inquiry' program and reach an easy solution, the computer responds like a human teacher.
64. CU screen (density table).	
65. CU child.	
66. CU keyset (#4 "Kerosene")	
67. CU tape spins.	
68. CU screen (Density table - "foiled again")	
69. CU child reacts	

70. LS student station room.	Plato and Socrates clarify the elements and relationships within message systems. The computer sends the primary message. When he responds, the student supplies feedback. The computer receives the feedback, stores and interprets it, and responds or sends another message.
71. CU tape slo-advance.	
72. MS girl in computer room.	
73. CU child (new one).	Proper use of the 'inquiry' teaching logic involves requesting and organizing enough information to answer a question such as number 'one' in this series.
74. CU screen (Question, "You are given a rectangular bar of metal. From what material is it made?")	
75. CU keyset.	
76. CU screen ("Volume of Overflow")	
77. CU child.	
78. CU keyset.	
79. CU child.	
80. CU screen (draws overflow and writes "100cc.")	
81. CU child.	
82. CU screen ("Weight 760 gms in air").	When sufficient information is assembled, the student may attempt to answer the original question.
Dissolve to	

83. CU keyset (fingers hit "S-T-E")	
84. CU screen (writes "E-E-L and CORRECT")	
85. CU tape fast advance.	
86. CU screen fraction lesson (writes "d-e-n-o-m-i")	Plato will even catch spelling errors that are part of a 'tutorial' logic on fractions.
87. CU keyset.	
88. CU screen ("Denominater - No")	
89. CU keyset re-typing.	
90. CU screen ("Denominator - OK")	
91. CU keyset logic buttons ("judge, help, aha!, etc.")	In addition to the standard typewriter keyboard, extra keys handle special functions.
92. CU screen fraction problems.	
93. CU keyset hit "Judge".	
94. CU screen ("#1 OK").	
95. MCU keyset.	
96 CU keyset hit "Judge".	
97. CU screen ("#2 No").	Should a response be judged incorrect, a special 'help' key will branch the student into a review sequence.
98. CU keyset hit "Help".	
99. CU screen changes to review slide.	

100. CU tape fast advance.	
Dissolve to	
101. CU screen (review being completed).	When the student discovers what caused his incorrect response, the 'aha' key sends him back to the original program where he may attempt to answer the question again.
102. CU keyset hit "AHA!"	
103. CU screen (original problems - "no" is erased).	
104. CU keyset	
105. CU screen (new solution).	
106. CU keyset hit "Judge".	
107. CU screen ("OK").	
108. CU tape slo-advance.	The feedback of student responses is assembled and printed by the computer for evaluation by the instructional staff.
109. CU computer panel.	
110. CU rapid read-out	
(Superimpose "Harvey Gelder, Secondary School Science Teacher and Plato Programmer").	GELDER: . . .and this is very nice because you see we have here a record of everything the student has done in the sense of response.
111. Three-shot (Superimpose "Elizabeth Lyman, Plato Project).	
112. CU Lyman.	
113. Three shot.	LYMAN: It seems to me that you're also looking over your own shoulder. . .
114. CU Lyman.	. . .and are able to evaluate your own teaching from this record.

115 CU Gelder.

GELDER:

This is not possible as you know in 30 students or 35 that most teachers have in classroom. The program here and the readout that we have of the student's progress the lesson which he was given, allows the teacher to know just exactly what responses were made, to each of the questions which were posed to the student, the time it took you see which is very important as one could compare one student's time of response with another and I think this is a very good way of furnishing to the teacher a great deal of very important information that they can really get no other way except with individual help.

116. CU Bitzer
(Superimpose "Donald Bitzer,
Plato Project").

BITZER:

Well, I think that the limitation is not so much on the things that we've done, but on the wisdom and creative ability of the people that eventually use the system. To me this would be the most exciting thing for a teacher - if I'm a teacher studying for the future, I can now anticipate the day when many of the mundane tasks of teaching will be carried out by the computer. . . and in place of that I'll be able to take the same time and apply it in a more creative way. . .

. . .to teach the student.

We're not talking about removing the teacher from the teaching function at all.

But, we're giving her leverage so that she can use her time more efficiently and teach a larger number of students effectively.

	NARRATOR:
Shots from SOCRATES and PLATO).	Computer-based teaching systems like Socrates and Plato contain all the elements of the communications process.
Computer tapes.	Messages. . .
Screen.	Medium. . .
Students.	Receiver. . .
Buttons.	Response. . .
Lesson Change.	Feedback.
	The key element in this man-machine teaching system is its ability to elicit, interpret, and respond to feedback - to provide individual tutoring, advancing the student not at the pace of the class, not at the rate dictated by budget and staff, but according to his own abilities.

1. MS Gerbner.

GERBNER:

Man is the talking animal and the picture making animal. To examine how he communicates is to look into the process that makes him human. As we do that, let us keep in mind that the teacher as communicator has not had much help until recently - first from the book then from other media and finally from all media systems including the computer - and has traditionally had to cope with complex and difficult situations over which she had little control. Now it is becoming possible to increase the control and the efficiency of the communication, and of the learning, that takes place. But as we learn to control more and more elements of a complex situation, we must also increase our ability to understand the process and to be prepared to exercise a much wider range of choices than ever before.

Ideally, the role of the teacher in the process of communication is that of the teacher as a director of learning activities, with greater control over more elements of the communication situation than ever before, freed from mechanical chores with time, to individualize certain aspects of instruction. Free to exercise the uniquely human ability to adapt and respond in an infinite number of situations - free to engage in the kind of mutual interaction which should be the human end of a technological revolution in the process of communication and teaching.

Dissolve to

2. MS Oberteuffer dissecting embryo as students watch (Superimpose "William Oberteuffer, Science Teacher, John Marshall High School").

3. CU absorbed students.	
4. CU Oberteuffer.	OBERTEUFFER (On Tape) I think learning is an entirely personal thing that takes place inside of students. I think people need time to learn. . . They must be given time to become involved in what they are doing.
5. CU boy looking down.	I feel that poor relationships in the classroom. . .
6. Extreme CU Oberteuffer	. . .between students and between students and teachers have a great effect on our ability to learn. Students certainly have. . .
7. CU girl and boy observing embryo.	. . .to know why they're there. They must develop some kind of group feeling. There is a great deal that we can do to promote a feeling of safety on the part of individuals, so that they will develop. . .
8. Extreme CU Oberteuffer.	. . .a freedom to express themselves. With the present knowledge explosion, you can no longer. . .
9. CU girl.	. . .fit into the pattern that has been established over the past couple of hundred years in this country for teachers; that pattern of knowing all the answers.
10. CU Oberteuffer.	I'm firmly convinced that teaching is not telling. I'm convinced that instead of telling, I should ask questions; ask questions which uncover things. And ask questions which guide people. I think a teacher, particularly in science and I'm not sure but what it's true in other areas these days, needs to be. . .

11. CU boy and girl.	. . .a director of learning activities.
12. CU boys absorbed.	(MUSIC BUILD TO END)
FADE OUT.	

"PERCEPTION AND COMMUNICATION"

One of
A Series of Motion Picture Documents on
Communication Theory and
the New Educational Media

Prepared for the Department of Health, Education and Welfare
and the U.S. Office of Education under terms of Grant B-131-A
Principal Investigator: Robert W. Wagner

Prepared by the Motion Picture Division
The Department of Photography
The Ohio State University

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"Perception and Communication"

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Producer.	Robert W. Wagner
Associate Producers.	David Parker Carl Clausen Hubert Smith
Supervising Editor.	Richard Long
Film Editors.	John Werner Tom Snider Emory Meadows
Cinematography.	John Friend Richard Sherman
Sound.	John Werner Richard Long William Buccalo William Finan
Business Manager.	William Drake
Production Assistants.	John Delbis Margaret Andrews Judy Gill June James
Narrator.	William Steis

Participants: Dr. Kenneth Norberg, Professor of Education, Coordinator, Audio-Visual Services, Sacramento State College, Sacramento, California; Dr. Hadley Cantril, Chairman of the Board, The Institute for International Social Research, Princeton University, Princeton, New Jersey; Dr. James J. Gibson, Department of Psychology, Cornell University, Ithaca, New York; W. Phil Herriott, Director, Education and Training, United Air Lines, Chicago, Illinois; Headstart teachers: Mrs. Susan Eaker, Mrs. Brenda R. Taylor, Mrs. Cynthia S. Rigel, Mrs. Shirley Duncan, Miss Suzanne Talbott, Miss Mary Anne Penzone, Mrs. Joanne King; Miss Lynn Patterson, Anthropology Student, The Ohio State University, Columbus, Ohio.

Consultants: Dr. Franklin Knower, Professor, Department of Speech, The Ohio State University; Dr. James Finn, Professor of Education, The University of Southern California; Dr. Edgar Dale, Professor of Education, The Ohio State University; Dr. Kenneth Norberg, Professor of Education, Sacramento State University; Dr. I. Keith Tyler, Professor of Education, The Ohio State University; Dr. Charles Hoban, Professor of Education, The University of Pennsylvania.

FADE IN:

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and Welfare, Office of Education,
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Principal Investigator: Robert W. Wagner

FADE OUT.

FADE INTO	NARRATOR
1. MS baby girl with cat.	(BACKGROUND MUSIC UNDER) As he matures, the young child tests his perceptions of concrete objects in a concrete way.
2. BIG CLOSEUP girl's hand touches cat's ear, fingers it.	How does it feel?
3. MEDIUM SHOT three-year-old boy playing with toy fire engine. He takes a drink from the squirting hose, coughs.	
4. BIG CLOSEUP: boy's palm with the water from the nozzle spraying over it.	What does it do?
5. MEDIUM CLOSEUP three children sprawled on the grass tap at shell of terrapin.	What does it look like?
6. CLOSEUP grade school age boy peering down, at cistern.	
7. CLOSEUP: cistern.	
8. MEDIUM LONG SHOT two young boys in the woods. Zoom-in as the smaller boy tries to pick up a rock, can't do it, succeeds in rolling it a short distance.	By observing objects and walking around them and by observing them from other sides, a child becomes secure in what his senses tell him by the time he reaches elementary school. (BACKGROUND SOUND)
9. WIDE SHOT grade school art show, cardboard "house" in prominent location. (COLOR)	As we look at the work of first graders we see that most children begin to see most things in much the same way. But we also find that some children begin to see some things quite differently. (MUSIC BEGINS)
10. MEDIUM SHOT girl painting "Welcome to the Art Show" on the wall of the cardboard house.	
11. MEDIUM SHOT girl peeling a print off linoleum block.	
12. WIDE SHOT large display of paintings. Child skips through the shot.	
13. MEDIUM SHOT prints of cats in black, white and blue shades.	

14. HIGH ANGLE CLOSEUP: real cat resting on a bright red cloth.	
15. CLOSEUP child's painting of cat outlined in orange	
16. CLOSEUP child's painting of cat outlined in pink.	
17. MEDIUM SHOT real cat standing on tablecloth, back arched.	
18. MEDIUM SHOT child's painting with cat pose matching, back arched.	
19. CLOSEUP child's painting of white cat on black paper, stars surrounding the cat.	
20. CLOSEUP child's painting of three cats	
21. CLOSEUP child's painting of "cute" conventional cat with detailed whiskers.	
22. CLOSEUP child's painting of cat as two black blobs.	(MUSIC ENDS)
DISSOLVE TO:	NARRATOR
23. MEDIUM LONG SHOT children seated in a circle around teacher in open field.	The grade school children at this summer camp are blind. Their visual perception is limited to less than ten per cent of normal vision. But other senses come into play. . .
24. CLOSEUP teacher	TEACHER(fading up) All right, let's see. . .I want everybody to try this box of rocks to see if you can tell what it is. Even if you have already, it doesn't matter. Feel that. If you're not sure of the first one, try another one and another one.

CHILD # 1

25. MEDIUM CLOSEUP child's hand fondling rock.

Do you know what I think this is?

TEACHER

What?

CHILD # 1

Slate.

TEACHER

26. MEDIUM SHOT boy takes rock out of box and puts it in bag.

Right. O.K. Now, see if you can pick out a piece out of this, Madeline. There it is. Try to pick out a real nice piece to take home. If you already have a piece, that's fine. You'll take it home to give to -- to trade it with some of your friends. Do you know what that is?

27. CLOSEUP fingers explore rocks.

CHILD # 2

28. BIG CLOSEUP hands tap one rock against another.

That's mica.

TEACHER

29. MEDIUM CLOSEUP rock cupped in hand

Right. Ruby mica.

CHILD # 3

30. BIG CLOSEUP Madeline in profile.

What should I do with it? I might sit on it in my pocket.

31. BIG CLOSEUP hand feeling rocks, bag under hand, legs crossed on ground.

TEACHER

No, mica's pretty strong. . .

32. MEDIUM LONGSHOT group seated in circle.

CHILD # 3

What do I do with it?

TEACHER (fading down)

You put it in your collection

NARRATOR

33. MEDIUM SHOT blind boy fingering bark of tree.

Through all our senses we come to perceive,

to understand the world around us.

34. BIG CLOSEUP hand traces shape of leaf, feels holes chewed by insects.

. . . .

BLIND CHILD

35. MEDIUM SHOT Children playing with cats at blind camp.

Great Scott, it's moving:

FADE OUT

36. MEDIUM LONG SHOT: Education building Sacramento State College, Sacramento, California

37. MEDIUM SHOT: entrance Education building.

38. MEDIUM LONG SHOT: Norberg

Super title:

Dr. Kenneth Norberg
Professor of Education

CAMERA MOVES IN SLOWLY TO A MEDIUM CLOSE SHOT OF DR. NORBERG.

DISSOLVE TO:

39. MEDIUM SHOT Dr. Gibson at desk, talking with graduate student.

Super title: Dr. James J. Gibson, Dept. of Psychology, Cornell University, Ithaca, N. Y.

40. BIG CLOSEUP Gibson

41. CLOSEUP: Gibson's hands finger the "feelies" on his desk.

42. MEDIUM SHOT Gibson at desk.

NORBERG

Perception -- our awareness of objects people and events. In a sense our perceptions are made up of the information we receive from direct contact with the world around us. But we also learn what to perceive, what meaning to read into the information our senses provide. In some areas of human experience perceptions are stable, and stay much the same from person to person.

Thus they can be studied as direct responses to external stimulation. One of the psychologists who has studied the features of sensory stimuli that shape our perceptions is Dr. James Gibson. . .

GIBSON (voice over)

If I'm right about the perceptual process being a matter of detecting or tuning in on the information that's already there, then the exploratory activity of the perceptual organs

	is what we've got to investigate.
43. MEDIUM SHOT Two five-year-old boys watching movie.	Looking, listening, discriminating,
44. MEDIUM SHOT Teenage boy watching, then reflecting.	detecting what is fundamental from what is incidental in this
45. CLOSEUP Irritated boy.	flow.
	You see, we do not learn to have
46. BIG CLOSEUP Small boy's feet walking gingerly through high grass, coming to edge of water, wading in.	percepts built on sensations, but to detect the information in available stimulation by exploration and discovery.
47. MEDIUM SHOT three four-year old boys on tractor.	A child, if left to himself, will
48. BIG CLOSEUP three boys.	poke around and prod and feel
49. BIG CLOSEUP hand on gear shift of tractor.	and look and pound things and break things up if you give him a chance, to see what happens,
50. MEDIUM CLOSEUP child's hand touching surface.	and will do everything he can in
51. MEDIUM SHOT child balances starfish on back of hand.	order to get stimulus information about the objects and events of the world.
52. BIG CLOSEUP older child fingers mold clay on potter's wheel	But you can educate the senses because
53. MEDIUM SHOT Gibson at desk, leans back in chair, looks up at his student.	they're perceptual systems, are exploratory. . . You can learn to look and learn to listen and learn to feel and when you do that, you educate the child.
DISSOLVE TO:	
54. MEDIUM CLOSEUP Norberg scale model house and stenciled wall design behind him.	NORBERG Some psychologists emphasize the external physical events that provide

	the raw information out of which our perceptions are formed. Others are more interested in perception as an act -- as the involuntary act of judgement by which we make something out of the stimulus, judgement reflecting assumptions based on past experience.
55. BIG CLOSEUP Norberg	But to see, to perceive, is to make a kind of prediction, to relate the present event, object of awareness to something that may happen next or could happen in the future. Thus perception is an on-going part of action -- an integral part of the total motivated behavior of the perceiver, and it is based on a combination of what he finds in the situation and what he brings to it.
56. MEDIUM LONG SHOT: Institute exterior as Cantril comes out of door. Super title: Dr. Hadley Cantril, Chairman of the Board, Int. Social Research Institute, Princeton University, Princeton, New Jersey	A leading psychologist of this point of view is Dr. Hadley Cantril. . .
57. CLOSEUP Cantril	CANTRIL(over) The process of perceiving the world around us -- of orienting ourselves so that we can act effectively to carry out our purposes -- is a never-ending process of prediction which we make on the basis of faith in the face of
58. MEDIUM SHOT Cantril walking across campus.	
59. MEDIUM LONG SHOT Cantril (picked up by camera as it tilts down from tower of building) goes over to bench, sits down.	

60. CLOSE SHOT man kisses baby

61. BIG CLOSEUP girl's smile.

62. CLOSEUP old coule kissing.

63. MEDIUM SHOT young couple kisses in silohuette.

64. MEDIUM SHOT bubble floats down, woman's finger bursts it.

65. CLOSEUP girl's eye

66. CLOSEUP two butterflies.

67. CLOSEUP hourglass (sand shifting quickly)

68. CLOSEUP piggybank as hand drops coin into it.

69. BIG CLOSEUP girl's hair. She turns, looks out at us.

70. BIG CLOSEUP nose, hair

71. CLOSEUP hand doodles rectangles on paper

72. MEDIUM CLOSEUP boy reading book titled "The Universe, The Earth" in library.

DISSOLVE TO:

73. MEDIUM CLOSEUP Norberg (Models of earth, planets in background)

uncertainties.

Our perceptions are similar to those of other people insofar as the assumptions we bring to a situation are like theirs.

When people in similar cultures tend to have similar perceptions and human beings everywhere would have essentially similar. . .perceptions of those objects and distances we all use in everyday life, the reality world of any individual is highly personal. It is his, and his alone. It is the center from which all his behavior stems. We apparently incorporate into our reality worlds only those significances that we sense are likely to be of use to us. . .that will matter. . .that will make a difference.

This is learning.

NORBERG

There are many different theories and much disagreement about how we perceive and thereby learn about the world around us.

But there is agreement on the basic importance of perception in human communication, and the teaching-learning

	process.
74. BIG CLOSEUP Norberg against plain wall	As teachers we must learn to sharpen our own perception and become more aware of the process by which perceptions are formed.
75. MEDIUM SHOT movie marquees, posters cluttered in front. 76. MEDIUM SHOT magazine rack.	It is also important to recognize the place of the audiovisual media in shaping the perceptual world of the learner.
77. LONG SHOT United Airlines Perceptual Training class.	That perceptual awareness can be made stronger and sharper is indicated by perception-training programs developed for industry personnel; for Peace Corps
78. MEDIUM SHOT Peace Corps volunteer with natives.	volunteers;
79. MEDIUM LONG SHOT teachers helping four-year-olds clean up nursery school room.	for teachers working with underprivileged children.
FADE DOWN	

80. LONG SHOT Airliner discharging passengers.	(AIRPORT BACKGROUND SOUNDS)
	NARRATOR
81. MEDIUM SHOT Herriott in group of passengers entering termial. Super title: W. Phil Herriott Director Education and Training, United Airlines.	At a time when three out of every four Americans is employed in a service industry, successful interpersonal communication is becoming increasingly important.
DISSOVE TO:	
82. WIDE SHOT Terminal Interior	In air transportation -- one of the most competitive service industries -- training procedures include courses in human behavior and problems in perception. . .under the supervision of educators familiar with perceptual skills.
83. MEDIUM SHOT Herriott as the camera follows him walking past the service counters, stopping at United, entering the door behind the counter as passenger comes up, girl clerk at counter waits on him.	
84. MEDIUM SHOT passenger and girl clerk.	HERRIOTT (over dialogue) One of our newest programs is called Perceptive Action. It's the result of four years of research on our part. It was developed to deal with what we felt was a missing link in the relationship between our agents and our customers. We try to get across the concept that a first impression is often misleading. We train our agents to be sensitive to the indicators of people's feelings, to develop an awareness of what people really mean beyond what they say. We

	use case studies, films, group discussions, role-playing, and a programmed text. . .
85. MEDIUM CLOSEUP projector running film in dark room	(SOUNDTRACK OF FILM FADES UP) CUSTOMER(on dramatization)
86. MEDIUM LONGSHOT terminal lobby, service counter.	That's all I do here at United is wait. I want my bags in here now!
87 MEDIUM SHOT CLERK (MOVIE)	CLERK You're not going to get them that way. I have no control over the mechanical system. If you want your bags, you're just going to have to wait.
88. CLOSEUP CUSTOMER	CUSTOMER Listen Buster. I'm sick and tired of waiting because of United. I've waited at the counter,at the gate, and even on the airplane, and I'm not going to wait a minute longer for anything. Here's my card. Deliver my bags to this address. . .
89 MEDIUM CLOSEUP Projector turned off.	HERRIOTT (over)
90. LONG SHOT Conference room drapes opened, chairs rearranged around table.	These agents are all salaried employees who each receive 16 hours of perceptual training.
91. CLOSEUP Pollack	Each of our discussion leaders is given 40 hours of training before he's sent out to lead his first course. POLLACK (fading up) When the agent offered to check to see

if the flight would make up anytime en route, the passenger said "No", to "forget it" and left the counter. Now, what do you think about the way the agent handled the situation?

92. MEDIUM TWO SHOT Vince, Jack seated at the table.

JACK

I don't think he done a good job.

VINCE

Well, I think he did a very good job under the circumstances. The passenger seemed to catch the agent off-guard. There wasn't much more the agent could have done.

93. MEDIUM SHOT Vince, Stewardess, tower out window in background

STEWARDESS

Vince, I think the agent was impersonal to the passenger and he didn't really even sympathize with him or offer him an apology or anything like that.

94. CLOSEUP Pollack

POLLACK:

Let's try something here. Jack why don't you role-play this situation and be the passenger? And Vince, you come over here and be the agent and act just as you would behind the counter. Try and think of some time you were a customer in a store and weren't treated the way you felt you should (be).

95. LONG SHOT Jack Vince change places around the table with Pollack.

VINCE (playing clerk)

96 CLOSEUP Vince in front of blackboard, standing.

Mr. Flintcraft, your flight is 847. It will board through gate 8B-8. However, it *is* running about 20 minutes late.

97 CLOSEUP Jack in front of coatrack.

JACK

Twenty minutes late! I just called out here about an hour ago, and you said it was running on schedule. What's wrong with you people? Can't you get anything on time?

98. CLOSEUP Vince.

VINCE (faltering)

Uh, all day there was a buildup of traffic over the airport, and this slowed down the arrivals and departures of all flights.

99. BIG CLOSEUP Jack

JACK

That doesn't mean anything to me; I don't care about air traffic; if you can't schedule your flights to get here on time. . .

100. CLOSEUP Vince.

VINCE

I apologize for that. If there's anything I can do. . .I could send a wire if someone was meeting you -- at your destination

101. CLOSEUP Jack

JACK

That isn't going to help me. . .you act like you're happy it's late!

102. MEDIUM LONG SHOT Group.

POLLACK (interrupting)

Thank you. Do you want to sit down here for a minute? You see what's happening? Vince is trying to be very calm and to sympathize a little bit with the passenger. Is it helping?

VINCE

No, not really.

(GROUP LAUGHS)

DISSOLVE TO:

103. MEDIUM CLOSEUP Herriott in terminal lobby seated

HERRIOTT

Research has shown that we spend about 50% of our time listening but we really hear only about 50% of this, however hard we try to listen. The ability to listen efficiently is very important for our agents as they listen to our customers. . .

DISSOLVE TO:

104. CLOSEUP Tape recorder

105. MEDIUM LONG SHOT Group of United employees around table listening to tape recording.

CLERK(on tape track)

I have no control over the mechanical system. If you want your bags, you're just going to have to wait.

106. CLOSEUP United employee

CUSTOMER

107. MEDIUM LONG SHOT Class

Listen Buster, I'm sick and tired of waiting because of United..I waited at the counter, at the gate, even on the airplane. . .

108. CLOSEUP Tape recorder

109. CLOSEUP Discussion leader.

110 CLOSEUP Woman listening.

111 MEDIUM SHOT Class writing

HERRIOTT (over)

The real purpose is to sharpen the sensitivity to the feelings of other people. Our original research showed that although our agents believed they could learn methods and procedures quite easily, they also felt that they couldn't learn how to relate to other people, that was something that you were born with, that this is part of your personality.

112. CLOSEUP Herriott in terminal lobby

HERRIOTT

However, in the course, I think we've shown quite well that this perceptive attitude of an individual is something you can learn. This is related back to us by our own agents with stories about customers and customer relations. They've also told us stories about the local grocery clerk the local service station mechanic. We're convinced that this type of behavior --this perceptive sort of thing -- is something that you can learn, that you can change behavior in this area.

FADE OUT.

FADE IN: 113. CLOSEUP Sign reading "International Students' Open House"	(FADE IN SINGING OF MALAYSIAN FOLK SONG)
DISSOLVE TO:	
114. MEDIUM LONG SHOT Students gathered around Lynn Patterson. Camera moves in on her while she sings.	NARRATOR This student of anthropology at the Ohio State University was one of the first Peace Corps volunteers. She spent two years teaching agriculture in Borneo. The problems she encountered are similar to those that confront every teacher, but in her situation they were a little more obvious......
115. MEDIUM SHOT Lynn as she finishes song and others applaud, an Asian beside her requests a song in Malaysian; she answers him in Malaysian, and then begins singing the song, playing the guitar.	LYNN (over) In the fall of my sophomore year I decided to apply for the Peace Corps.
116. CLOSEUP: Lynn singing	I kept a photographic record of many
117. STILL Lynn deplaning in Hawaii	of my activities, and I use photographs now to help explain my Peace Corps experience.
118. STILL Hawaii (establishing long shot)	The class I was in studied the Malayan languages and we also worried as much
119. STILL Peace Corps classroom in long shot	as we could about the history and culture of that area.
120. STILL Anthropologist with group of students.	The anthropologist who worked with us tried to give us some idea of how the culture in Malaysian differs from the

121. STILL Malaysian with pipe, another with tennis hat.

122. Shrine in jungle.

123. STILL half-clad natives.

124. STILL Lynn at 4H table.

125. STILL Lynn, native girl in field

126. STILL Lynn on bike.

127. STILL Children

culture in the United States. He lectured and showed slides on differences in religion gestures, time and taboos. He tried to give us a knowledge of the culture we'd be working with so that we'd be able to see, and be aware of these differences. The training I received was extremely valuable. If I hadn't been aware of these cultural differences and been able to recognize the motives and the needs produced by them, I wouldn't have been able to get to know the people; and they wouldn't have understood me and I wouldn't have been a very effective teacher. I spent most of my first year in Sarawak traveling in the rural areas, getting to know the language and getting to know the people, and letting them get to know me. I had to break down certain barriers that existed between us. For example, children who had received some education would go back to their villages and say, "Now I can speak English, so I'm too good to work with my hands in the fields."

128. STILL Family group.	And there's the story that most of the young children are told when they misbehave, that there is a white devil
129. STILL Young boy	with blue eyes hiding in the jungle and it will come out and eat them if they are not good.
	LYNN
130. STILL Lynn in hat, sun glasses, closeup.	*I* was white and I had blue eyes and it
131. STILL longshot village	was very unnerving to walk into a village and have the children run
132. STILL Fearful children.	screaming for their mothers. I also had to break down the villagers perception of a white woman. They'd
133. STILL Two girls.	never known an American woman before,
134. STILL Lynn, two girls in background.	and they automatically classified me as a European lady -- a "meme." It
135. STILL CLOSEUP Lynn drinking from cocoanut.	was very hard for them to understand that I wanted to be different, that I
136. STILL Woman bathing.	wanted to do my own laundry, for example.
137. STILL. Girl CLOSEUP.	A girl would say to me "if you carry your own bucket and laundry to the
138. STILL. Woman bathing.	river, this will bring great shame on me." She thought this was the way to treat a European lady. So I would say, "it would bring great shame on me if I
139. STILL. Lynn in field.	*don't* carry my own laundry to the river." I just had to keep trying to change this kind of attitude until they began

	to think of me as something other than a stereotype.
140. STILL Lynn bathing	I also had to change some of my perceptions. One of the first things I learned to do was bathe in a sarong as the women of Sarawak do.
141. STILL Lynn fixing her hair, in a sarong.	I had to learn to hold the sarong in my teeth and work all this business underneath to dress and undress. It's just unthinkable for a person to bathe in the nude after the age of four or five.
142. STILL Americans walking downtown streets.	I think many Americans go into a new culture and assume that their patterns of behavior
143. STILL Lynn, girl in the jungle	are universal. From my Peace Corps experience I know that this kind of attitude can be disastrous. (MUSIC FADES IN UNDER)
144. STILL Closeup children.	I think you have to approach each situation with an attitude of waiting and watching and asking questions until you really know the people with whom
145. STILL Montage of peoples.	you're dealing.
146. STILL Lynn getting on plane.	LYNN
147. MEDIUM SHOT Lynn singing and playing guitar, as camera pulls back to show small group of students around her.	I feel I accomplished my purpose in Sarawak. It was a good experience and I'd like to go back someday. Probably the most important thing I learned was not to take things at face value, not to take things for granted. (LYNN FINISHES SINGING SONG)
FADE OUT	

FADE IN:	
148. MEDIUM SHOT Teaching assistant with autoharp squatting, singing.	(MUSIC "LOOBEY LOU" SUNG BY TEACHERS AND CHILDREN)
	NARRATOR
149. LONG SHOT Playground of elementary school, street with heavy traffic in background. Singing game is in progress.	Sometimes it is easier to recognize perceptual barriers operating in a foreign culture than to recognize those operating within our own.
150. CLOSEUP Boy clapping	These five-year-olds are having their
151. CLOSEUP Boy sucking thumb, scratching head.	first school experience. They may look no different from other five-year-olds,
152. MEDIUM SHOT Children clapping, singing over shoulder of teacher.	but in some ways they are exceptional. They come from families of four or
153. MEDIUM SHOT Children	more with a total annual income of
154. CLOSEUP Smiling girl.	less than $2000. Many of them have never been more than four blocks away
155. CLOSEUP Whirling boy	from home. Most of them don't know
156. MEDIUM SHOT Girl turns.	the names for lettuce or celery or other foods they eat, or the names of the town in which they live. They may
157. CLOSEUP Clapping boy.	never have had their birthday celebrated.
158. MEDIUM LONG SHOT Children in playground,	Some may not have recognized themselves in a mirror.
	(MUSIC ENDS "ALL on a Saturday Night")
159. LONG SHOT Three Negro children playing in street with wagon. In the background, train rolls by.	(SOUNDS OF TRAIN, DOG BARKING CHILDREN PLAYING, CAR APPROACHING)
160. MEDIUM LONG SHOT Car pulls up at curb (Children's point of view)	

161. MEDIUM SHOT Four children look out the window.	(SOUND OF DOOR SLAMMING)
162. MEDIUM SHOT Car door opens, Mrs. Duncan gets out. Super title: "Shirley Duncan, Elementary School Teacher."	Training in the special problems of the underprivileged child includes a better
163 MEDIUM LONG SHOT Mrs. Duncan crossing street, waving	knowledge of the home environment than most teachers ever get......
164. MEDIUM SHOT Four children at window wave back.	. ....
	DUNCAN
165. MEDIUM SHOT Mrs. Duncan enters opened porch door.	Hello, Mrs. White. **WHITE** **DUNCAN** Hello, Mrs. Duncan. How are you? **WHITE** Fine... **DUNCAN**
166. MEDIUM CLOSE SHOT Duncan walks to couch, sits. Children crowd around her.	Why hi David, and Morris and Esther, how are you?
167. MEDIUM CLOSEUP Duncan.	**DUNCAN** Now I would like to know how Alfred is getting along... **WHITE** (over) Oh, Alfred is getting along wonderfully. His IQ is much better than the rest of
168. CLOSEUP Mrs. White	them for his age and he wants to know
169. MEDIUM CLOSE SHOT Four children watching. One leans over, whispers to another, who smiles.	the reason for everything and why. And he wants to see everything and he takes more notice to everything.
170. CLOSEUP Duncan	**DUNCAN** That's fine.

171. MEDIUM LONG SHOT Mrs. White shushes children, talks to Mrs. Duncan.	**WHITE** And I"m so interested in getting Mark started 'cause he doesn't want to stay home. He wants to go to school. **DUNCAN** He sees his older brother going and he wants to go too.
172. MEDIUM SHOT Duncan and Penzone at table.	**DUNCAN** This is one of the reasons these children have such a hard time learning how to listen and pay attention in school, because they can block out sound whenever they want to.
173. LONG SHOT Table of teachers at Board of Education conference room.	**NARRATOR** These teachers have gathered -- as they gather every weekday afternoon -- to exchange observations and to study materials dealing with the special problems of the underprivileged child. The item under discussion is "Perceptual Skills."
174. MEDIUM SHOT Rigel, King. Super Title: "Joanne King, Elementary School Teacher"	**MRS. KING** They are very familiar with jets and jet streams, and talk about these very easily; yet some of the children were not at all familiar with the boat.
175. CLOSEUP Mrs. Rigel	

176 CLOSEUP Mrs King.	**MRS. KING**
177 MEDIUM CLOSEUP Teacher.	They had the concept that the boat had four wheels. They had no idea where they would look for a boat, and this was very surprising, for we had assumed
178. CLOSEUP Mrs. Rigel. Super Rigel title.	they would have seen these things on television in their homes. **MRS. RIGEL** Well uh -- though most of these homes do have television. uh -- and most of the TVs are running from morning to
179. MEDIUM SHOT Boy leaves TV set as program fades up	night, I've found the parents don't (ORGAN MUSIC, SOAP OPERA "BRIDGE")
180 CLOSEUP Mrs. Rigel.	discuss and explain things they see on television and therefore, they just don't get much from it.
181. TWO SHOT Penzone, Duncan Super title: "Mary Anne Penzone, Elementary School Teacher"	**MRS. PENZONE** Something I've discovered is that the children like to touch my hair, stroke my hair. Perhaps that is just their way of finding out what hair is like, what a human being is like.
182. MEDIUM LONG SHOT Children at farm, watching goats.	I know that children this age learn best through their senses and so I wanted to take them out to the farm
183 MEDIUM CLOSE goat	so that they could touch the animals, hear them and see them. (FARM SOUNDS)

184. CLOSEUP Two girls.

185. MEDIUM SHOT Two girls pitch hay to the goat.

186. MEDIUM LONG SHOT Cow and children around it.

187. MEDIUM SHOT Children.

188. CLOSEUP Cow starting.

189. MEDIUM CLOSE SHOT of cow and children.

190. MEDIUM SHOT Children climbing fence, peering down at cows.

191. CLOSEUP Children looking over fence.

And we looked at books, talked about the farm, but it just didn't seem to register, to be meaningful to the children. So-called normal five year olds have had experiences going to the farm or to the zoo. These children haven't had as many opportunities to take trips. That was a big obstacle for them to overcome right there, the idea of a trip. I'm afraid of cows, so I knew I'd have to be calm so that the children would be calm.

(EXCITED VOICES, COW MOOS)

(SOUND OF HORSE WHINNYING)

They were able to walk around the farm at their own speed. I did'nt force the children to move on.

PENZONE (over)

If I felt they were interested and wanted to stop and look at something, I'd let them do that. When they stop to look, they're absorbing it. They are taking it inside themselves and letting it become a part of them.

(SOUND OF CATS, CHILDREN)

192. MEDIUM SHOT Teacher holding kittens for children to pet. In background Penzone is also holding cats.

193. MEDIUM CLOSE SHOT Penzone and little girl. Penzone comforts her while she waits for her to pet the kitten.

194. MEDIUM SHOT. Girl holds kitten. Two other girls fight over it. The girl who was with Penzone then enters the scene as one of the grils takes the cat away.

195. CLOSE SHOT Three girls.

196. CLOSEUP Girl with thumb in mouth, hides in Miss Penzone's skirts.

197. LONG SHOT Jerry climbing fence, peering over it at cow.

198. CLOSEUP Jerry's face.

199. MEDIUM SHOT Girl with thumb in mouth, runs to teacher, looks off-screen fearfully.

200. CLOSEUP Cow

201. MEDIUM SHOT Girl looks up at teacher and smiles, swings arms with her.

202. LONG SHOT Jerry throwing hay to the cow.

One little girl was very much fearful and she had to stay near me. She kept throwing her arms around me every once in a while and she'd say, "Oh, I"m scared." At one time when I was petting a little kitten, she was able to put one hand on me and then, with her other hand, she was able to pet a kitten. I kept telling her that we'd talked about the cat, how it looked. I focused attention on the animal. Some of the children in the classroom were beginning to take their thumbs out of their mouths, and we'd prepared the children for the farm. Yet, when we got to the farm, many of them froze up; and you'll notice there are thumbs back in mouths.

(FARM SOUNDS)

(SOUNDS OF COW MOOING)

203. MEDIUM LONG SHOT group of children, teachers waiting to get back on the bus.	(SOUND OF HORSE WHINNYING)
204. MEDIUM LONG SHOT Jerry walks to join line waiting for the bus.	I'd say that most of them finally did know a goat and a cow and a pony.
DISSOLVE TO:	
205. MEDIUM CLOSEUF Taylor Super title: "Brenda R. Taylor, Elementary School Teacher"	**TAYLOR** We all are aware of the fact that so many of the children within their homes do not have a well-rounded breakfast in the morning.
206. MEDIUM LONG SHOT Table of children as Mrs. Taylor passes out napkins, peaches. The camera slowly pans from one end of the table to the other as suspicious children sample the peaches.	With this in mind we decided to have a breakfast. When they arrived we had half a peach each. **CHILD** I don't want any. **TEACHER** Why, peaches are good. **CHILD** I don't want none.
207. MEDIUM SHOT Boy.	**NARRATOR** Children who have never seen a peach before may react negatively at first. But their perception develops through
208. MEDIUM CLOSEUP Boy, girl.	tasting, testing, and comparing this experience with other experiences.

209. CLOSEUP Tousled-haired boy eating peach. 210. CLOSEUP Same boy looking at peaches. 211. MEDIUM SHOT Children and teachers at market 212. MEDIUM CLOSEUP Teacher explaining to child. 213. CLOSEUP Negro girl. 214. CLOSEUP White boy.	TAYLOR(over) Now about a week later we had an opportunity to go to a market which was very near to our school. And everything was a peach, an orange was a peach, a cantaloupe was a peach; everything was a peach... (CHILDREN TALK, MARKET SOUNDS)
215. MEDIUM SHOT Teacher 216. MEDIUM LONG Teacher and children (from other side of stall) 217. WIDE SHOT teacher gets plums from grocer, starts to leave with the children.	So finally, after we saw so many of these things, they realized that a peach was a peach that has fuzz; a plum was red and did not have fuzz; a plum was a plum and a peach was a peach. So we purchased some plums.
DISSOLVE TO: 218. MEDIUM LONG SHOT CLASSROOM as teacher help four-year-olds put away toys. Super title: "Suzanne Talbott, Elementary School Teacher"	NARRATOR A teacher of underprivileged children, children whose perception of themselves was underdeveloped-- remembers their reactions to some playground photographs.
219. MEDIUM CLOSEUP Snapshots pinned onto classroom bulletin board.	TALBOTT Most of them hadn't seen themselves in a snapshot. We had one little white boy in the class, and this was where they first realized that he was white.

220. MEDIUM SHOT Children seated in rows on floor.	TALBOT (in classroom) Now we're going to see a movie. You remember the other day I took your picture? (THEY NOD)
	NARRATOR As one of the ways to develop perceptions, this teacher took 8mm movies of a class picnic.
FAST DISSOLVE TO:	
221. MEDIUM CLOSE SHOT Teacher leaning over, running the projector.	(SOUND OF PROJECTOR RUNNING, CHILDREN'S COMMENTS)
222. MOVIE SCREEN shows children climbing slide.	
223. CLOSEUP Boy cups hands to his face.	TALBOTT (over)
224. CLOSEUP Two girls.	Most of the parents don't call them by name so they're not used
225. CLOSEUP Two boys smiling.	
226. CLOSEUP Children	to using names. During these movies,
227. MOVIE SCREEN Shows boy going down the slide.	they would call out the names of their classmates.
228. CLOSEUP Boy talking	**CHILD** (over)
229. MOVIE SCREEN Shows a group of children waving at camera.	Dere me! Dere Alvin! Dere Terry!
230. CLOSEUP Three boys wave back at the screen.	
231. CLOSEUP White and Negro boy stare at screen.	(SOUND OF CHILDREN RESPONDING TO THE MOVIE, PROJECTOR NOISE)
232 MOVIE SCREEN Shows a few children swinging in swings.	
233. CLOSEUP Expressionless boy.	
234. MOVIE SCREEN SHows picnic table with children around it eating	

235. MEDIUM SHOT Two boys make eating gestures, reacting to the screen

236. MONTAGE OF WATCHING FACES.

NARRATOR

When a teacher faces her class she must know who is out there. She must help her students discover who they are, and start where they are. This is her best insurance of obtaining similar perceptions and more accurate perceptions in her students.

FADE OUT.

237. MEDIUM LONG SHOT Norberg, with video tape recorder, overhead projector, and paperback books in the background. We move in on him very slowly.

238. LONGSHOT United personnel writing, tape recorder running, testing session.

239. STILL of Lynn, natives.

240. LONGSHOT Table of headstart teachers

241. MEDIUM SHOT Talking girl.
242. MEDIUM SHOT listening girl.
243. MEDIUM SHOT talking girl.
244. MEDIUM SHOT talking boy...

245. BIG CLOSEUP listening boy.

246. BIG CLOSEUP teacher.

247. MEDIUM SHOT Norberg, videotape recorder in the background.

NORBERG

What we know about perception is crude and somewhat clouded by conflicting psychological points of view. But we do know that out of common experience we come to hold certain perceptions in common.

We also know that the same words, events and pictures can lead to perceptions that differ greatly from individual to individual. Can perceptions be changed? We have the experience of industry training programs, orientation for Peace Corps volunteers, workshops for teachers of culturally underprivileged children.

These are all examples of how we can learn to become more keenly perceptive of the world around us, more sensitively aware of others and of ourselves.

From these programs and from psychological research, we begin to see that perception is not just a matter of passive registration of information, but that it depends to a great extent upon the prior experiences and purpose that one brings to a situation.

248. MEDIUM LONG SHOT group discussion in high school English class.	This means that the teacher must not only be a subject matter specialist, but also a transactional agent, a professional designer and arranger of learning experiences. A good instructional program allows perceptions to operate not only in situations that require an answer, but also in situations that require the discovery of the question to be answered.
249. MEDIUM SHOT Norberg with low-key setting of three-dimensional models, light panels in the background	The school must provide the student with a rich variety of activities and materials -- to fulfill two basic needs: there is a need for experiences that insure an adequate supply of common perceptions. We must also provide an environment that will nourish original perceptions, those that grow out of the unique experiences of the individual.
250. BIG CLOSEUP Norberg.	Perception is basic in communication. It is fundamental in the teaching-learning process. We cannot learn without acting. We cannot act without perceiving. Personal growth depends upon the quality and the validity of our perceptions.

FADE OUT
FADE UP ON:

251. CREDIT TITLES ARTWORK

DISSOLVE TO:

252. CREDIT TITLES ARTWORK.

FADE OUT.

"THE TEACHER AND TECHNOLOGY"

One of
A Series of Motion Picture Documents on
Communication Theory and
the New Educational Media

Prepared for the Department of Health, Education and Welfare
and the U.S. Office of Education under terms of Grant B-131-A
Principal Investigator: Robert W. Wagner

Prepared by the Motion Picture Division
The Department of Photography
The Ohio State University

FINAL SCRIPT
November, 1966

"The Teacher and Technology"

Produced under a grant from the Department of Health, Education and Welfare, and the U.S. Office of Education, by the Department of Photography of the Ohio State University.

Producer	Robert W. Wagner
Associate Producers	Carl Clausen Hubert Smith David Parker
Supervising Editor	Richard Long
Film Editors	John Werner Tom Snider Emory Meadows
Cinematography	John Friend Richard Sherman
Sound	William Buccalo William Finan Richard Long
Business Manager	William Drake
Production Assistants	John Delbis Margaret Andrews Judy Gill June James
Narrator	William Steis

Participants: Dr. James Finn, Professor of Education, the University of Southern California; Major H.B. Hitchens, Director, Audio Visual Services, Air Force Academy, Colorado Springs; Dr. Charles F. Madden, Head, Communications Department, Stephens College, Columbia, Missouri; Lowell Thomson, Principal, Brigham Young Laboratory School, Provo, Utah; Louis Chatterly, Math teacher, Brigham Young Laboratory School; Lamar Hendrickson, English teacher, Brigham Young Laboratory School; Rex Arnett, Language teacher, Brigham Young Experimental School; Dr. Gaynor Petrequin, Principal, John Marshall High School, Portland, Oregon; Charles Mansfield, (formerly) Principal, Valley Winds Elementary School, St. Louis, Missouri.

Consultants: Dr. Edgar Dale, Professor of Education, the Ohio State University; Dr. Kenneth Norberg, Professor of Education, Sacramento State College; Dr. George Gerbner, Dean, Annenberg School of Communication; Dr. Franklin Knower, Professor, Department of Speech, the Ohio State University; Dr. I. Keith Tyler, Professor of Education, the Ohio State University; Dr. Charles Hoban, Professor of Education, the University of Pennsylvania; Richard Hull, Director, Telecommunications Center, the Ohio State University.

FADE IN:

TITLE CARD #1

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of Education under the provisions of Title VII
of the National Defense Education Act.

Principal Investigator: Robert W. Wagner

FADE OUT.

1. Fade into Dolly Shot, exhibit showing children looking at model of Telstar; others in background with visual phones; exhibits of various kinds.	FADE IN ELECTRONIC SOUNDS MIXED AUDIO AND FADE UP RECORDED VOICE FROM COMPUTER: "Hello, ladies and gentlemen"! Those words were spoken by an electronic computer. . .
2. Dissolve to MS three boys looking at huge, revolving model of a human heart. They wear earphones.	X-FADE TO ANOTHER RECORDED VOICE: "...you are looking at a model of a human heart about six times the actual size. . .
3. Three Shot of the boys intently listening and watching.	. . .circulation to the head, the arms, and legs. . .
4. CU the model as it revolves.	. . .the lungs, and the rest of the body is represented diagramatically. . ."
5. Dissolve to CU legend: "How Atoms Behave." Pan down to boy working the model, as cork balls simulating the behavior of atoms, circulate.	X-FADE TO BACKGROUND SOUNDS.
6. Dissolve to huge model of human jaw as camera dollies around it. Children established in the background.	X-FADE TO RECORDED VOICE: ". . .you are now looking at a scientifically correct, enlarged model of an adult human jaw. . ." (Continue to end of dolly)
7. Dissolve to CU small boy reading into telephone with his voice becoming visible on oscilloscope. He reads haltingly, stumbling over big words.	X-FADE TO VOICE OF BOY, READING HALTINGLY: ". . .When you speak into the telephone transmitter. . .
8. CU Instruction panel from which he is reading.	. . .you will see a graphic representation. . .
9. CU Oscilloscope and boy.	. . .of your voice on the optical (stumbles) oscilloscope (stumbles). . .

10. CU boy in foreground, oscilloscope in background.	BOY'S VOICE UNDER TO NARRATOR WHO SPEAKS THOUGHTFULLY, DELIBERATELY: In the beginning was the word. . . Even in an age of machines that talk, and show. . .and teach, and remember. . Johnny must still learn to read. . .
11. Dissolve to CU university student in carrel punching up audio tape in listening lab. (OSU Music Research Lab)	But the fact is, that a significant change has taken place in education. . .
12. Reverse shot of student with headphones.	The Second Industrial Revolution has caught up with teaching and learning. Technology is here to stay.
13. CU Small girl with headphones as she listens to two tones, the second higher than the first.	BACKGROUND SOUNDS OF PROGRAM UP.
14. Reverse shot as girl pushes correct response arrow.	
15. CU face of program with legend: "Welcome to Plato! Programmed Logic for Automatic Teaching Operations."	
16. CU boy as he begins program.	
17. Extreme CU keyboard as boy punches number "3" on electric typewriter.	(SOUND OF TYPEWRITER)
18. ECU as he looks up at response panel.	
19. CU as boy looks up at response panel.	

20.	CU response panel as his name is typed in: "John Tilden." The computer's notation: "OK" follows.	
21.	Dissolve to computer tape reel in action.	X-FADE TO COMPUTER SOUNDS, THEN BRING VOICE OF COMPUTER IN OVER:
	Lights on control panel blink.	". . .And now the computer would like to express its appreciation for your attention. Thanks for listening."
	FADE OUT	

1. FADE INTO LS campus, USC. Superimpose: "University of Southern California."	FADE IN BACKGROUND SOUNDS. EXTERIOR. BIRDS. QUIET ATMOSPHERE.
2. Dissolve to sign: "Office of Dept. of Instructional Technology, School of Education."	
3. Dissolve to CU James Finn with title supered: "Dr. James D. Finn, Professor of Education."	FINN (SYNC) What do we really mean by "instructional technology?" One way is to say that we are using conventional audiovisual materials or newer media, by which we mean films, television, and projected materials of all kinds for use in teaching. But instructional technology means much more than this today. Essentially, ours is a knowledge-generating culture with its birth in the Second Industrial Revolution - the age of automation, the age of atomic power. Instructional technology is related to this development, and could be thought to have begun in the early nineteen-twenties. . .
4 Zoom out as Finn switches on overhead projector, and the image of a time-chart appears on screen behind him. He picks up pencil, details the developments on the transparency.	. . . In the early nineteen-twenties the teacher did have something of an arsenal at her disposal consisting of a few films, slides, filmstrips - which were used by a few teachers, a few times, in a few schools. . .
5. CU the chart as Finn delineates each development. Montage of equipment symbolic of each major technological advance is supered on the background chart.	. . . In the middle thirties, the sixteen millimeter sound motion picture projector was introduced which caused a great rise of interest in the development of this field. . . After World War II the tape recorder was added to the arsenal of the teacher, and about the same time a great interest developed in new kits of materials correlated around a text. Now these materials were correlated, but they could be used independently, not systematically, and very often they were not used at all.

FINN (Cont.)

	By the mid fifties, we began to see much more highly organized programs, including the introduction of television, the language laboratory, teaching machine and programmed learning, 8mm film both in cartridge form and with sound, large group, multi-media, multi-screen presentations, and towards the end of this decade, computers, classroom communications devices, and other sophisticated approaches to instruction.
6. Dissolve to second chart. Zoom into detail "Period of Transition - 1955-1965".	The decade 1955-1965 produced expressions such as "the new media," "educational technology," and "the technological revolution in education."
7. Dissolve to CU Finn.	We're still a long way from applying what we know about educational technology - including learning theory - to the improvement of education in our school systems. The important thing to remember, I think, is that only the naive have the view that technology is simply a matter of hardware and materials - it's very much more than that. It is a way of organizing, really a way of thinking about materials, men, organization patterns, man-machine systems. It applies tests of economic feasibility to the problem, and it is fundamentally concerned, I think, with the interactions of science, art, and human values. There is no doubt, however, that technology will have immense effects upon courses of instruction. . .
8. Dissolve to class at Stephens College.	. . .including the humanities.
9. Dissolve to language laboratory at Brigham Young Laboratory School.	It will have effects upon school architecture and the curriculum.

10. Dissolve to instructional materials lab, University of Southern California.	It will determine the shape of the school of the future. And it will change the role of the learner, the teacher, the administrator, and the educational media specialist. . .
11. Dissolve to CU Finn.	. . .the first educational technologist of our time. The role of the educational media specialist was first originally sharply defined by the Armed Forces during World War II, under the critical need for efficient, rapid, mass instruction - a need which has now become a crucial world problem. Simply put, we must learn or perish!

1. Fade into LS Air Force Academy parade grounds with cadets marching by. Camera pans to Major Hitchens as he stands screen left, salutes, moves out screen right.	FADE IN MILITARY BAND MUSIC
2. MS Hitchens enters screen left past "AV Center" sign and enters office.	FADE MUSIC UNDER IN PERSPECTIVE THEN UNDER AND OUT IN FOLLOWING SEQUENCE.
3. MS interior as Hitchens sits at desk. Superimpose title: "Major H.B. Hitchens, Director Audio Visual Services."	**HITCHENS** (VOICE OVER): Here at the Air Force Academy, we look on the teacher's role as that of a manager of instructional resources. . . or as a manager of the student's environment.
4. CU Hitchens at desk.	**NARRATOR:** The Audiovisual Center at the Air Force Academy is based on. . .
5. Dissolve to CU rotating picture file.	. . .the concept of the centralization of. . .
6. MS instructor previewing film. Hitchens appears briefly in background, observes, moves on.	. . .instructional materials and facilities under the direction of a Media Specialist.
7. Dissolve to CU TV monitor as image appears featuring a presentation by Captain Chester Caton.	But the objective is to put instructional technology under the control of the individual classroom teacher.
8. CU specialist examining plastic model.	For example, specialized models, charts, and displays are tailor-made
9. MS the model.	to instructor's specifications in the Center's workshop.

10. Pan to working model of circulatory system.	
11. CU plastic model of circuitry as hand plugs in component.	
12. CU picture file.	NARRATOR: The Graphics Division creates. . .
13. MS story-board layout for filmstrip, as drawing is added.	. . .instructor-inspired designs for filmstrips. . .
14 CU transparency in latter stages of development.	. . .overhead transparencies. . .
15. CU text layout.	. . .and text materials and illustrations for classroom handbooks.
16. Dissolve to MLS film inspection deck to instructor and projectionist previewing film.	The Center also includes a library of 3000 motion pictures with preview facilities for individual instructors who make the final evaluation and selection of films. . .
17. Two-shot of instructor and projectionist.	. . .for classroom use.
18. Dissolve to montage of equipment of all types.	The multi-media approach of the Center is expressed in the variety and types of visual and auditory equipment available for the instructor. . .
19. Dissolve to LS master control room of closed-circuit TV system.	. . .including a complete closed-circuit television system within the complex of Academy classroom buildings.

	BACKGROUND SOUNDS OF CONTROL ROOM UP, THEN UNDER AND OUT TO NARRATOR:
20. Dissolve to MLS Captain Caton in studio.	The concept of teacher-centered service. . .
21. MCU of console as material is placed under overhead camera and the zoom-in control is operated. The image appears on the monitor.	. . .is most clearly seen in the Academy's instructor-centered television studio. Here, the instructor is in control of. . .
22. MLS the studio showing floor and overhead camera.	. . .films, slides, charts, graphs, and his own image as he programs his own selection of materials and arrangement, using one pre-set floor camera and a second overhead camera which he. . .
23. ECU the control panel.	. . .controls from the teaching console.
24. ECU the monitor as the image fades in.	The presentation is then recorded on videotape for later transmission to the classroom.
25. Dissolve to LS classroom as instructor introduces the lesson.	INSTRUCTOR: In the face of numerous misconceptions concerning the nature of poetry, and the role it must play. . .
26. ECU cadet as he listens attentively.	. . .in coming to terms with ourselves and coming to terms with the society in which we live. . .

27. LS the class as instructor continues.	INSTRUCTOR (Cont): . . .we've prepared this tape for you as a kind of introduction to the poetry block. What we propose to do is merely stimulate an interest, perhaps get you to the point of asking questions concerning the nature of poetry, and then I hope, during the block, you'll be able to find some of the answers.
28. CU second cadet. MS class as they and teacher listen. CU cadet.	RECORDED FRAGMENT OF SHAKESPEARE: . . ."Of nought but earth can Earth make us partaker, But knowledge makes a king most like his Maker". . .
29. LS the classroom. Instructor seated on edge of desk watching TV monitor as his image appears from the videotape.	INSTRUCTOR (From TV Screen): That, you say, is poetry. No doubt. Right? I mean it sounds stately enough.
30. CU the screen image.	And after all, it is Shakespeare. But then, what about this. . .
31. CU the live instructor	. . .an experiment currently going on in New York and San Francisco? MUSIC AND VOICE TEMPO UP FROM TV AUDIO
32. CU cadet watching intently.	
33. CU second cadet.	
34. MS the instructor and class from rear of room featuring monitor.	
35. MCU the screen and students.	MUSIC UNDER TO HITCHENS:
36. Dissolve to Major Hitchens at his desk. Super title identification.	Television is not used as a primary means of teaching. We believe that teachers teach, and television is no more nor less an educational tool than, for instance, is the overhead projector...

37.	Dissolve to CU film chain in TV control room.	. . .or the motion picture projector.
38.	CU teaching console as teacher pushes control button.	Our services are instructor-centered.
39.	CU technician with instructional model.	One central control and catalyst. . .
40.	CU overhead transparency.	. . .for the implementation of the various technological media that are available in todays world. . .
41.	CU 2x2 slide rack.	
42.	CU rotating still photo file.	
43.	CU videotape playback in operation.	. . .for the teacher.
44.	Dissolve to MLS classroom with teacher, students, TV established.	(END MUSIC IN UNDER)
45.	CU cadet watching intently.	
46.	CU cadet absorbed in thought.	
47.	Slow dissolve to CU Air Force eagle, then pan down statue to legend: "Man's Flight Through Life Is Sustained Only By The Power of His Knowledge".	
	FADE OUT.	MUSIC UP AND OUT.

	NARRATOR:
1. FI Exterior Stephens College library building. Madden looking out window, then retreats out of scene. Super title: "Stephens College, Columbia, Missouri."	Good education has been defined as Mark Hopkins - a Renaissance man - on one end of a log. . .
2. Dissolve to MS girls entering door from snowy exterior.	. . .and a curious, receptive student at the other. . . Although the log is outdated in today's world of exploding knowledge. . .
3. Dissolve to view through window of art gallery.	. . .the qualities of the Renaissance man and the stimulation of Mark Hopkin's dialogue may live on - not in spite of. . .
4. Dissolve to Interior classroom as instructor checks with technician at control board.	. . .but because of technology in education. At Stephens College teaching by long-distance telephone comes close to balancing the "two ends of the log."
5. Two-shot, instructor and technician.	BACKGROUND SOUNDS UP
6. CU technician as he makes connection.	
7. MLS as instructor moves to address class.	**MADDEN (SYNC):** We seem to have Mr. Bourjoily on the line and the other colleges connected up, so I think we're about ready to begin. You'll remember that Mr. Bourjoily is in Mexico; he'll probably tell you something about that. You already have. . .

	MADDEN:
8. CU mimeo sheet on desk Biographical Data, and paperback copy of "The End of My Life."	. . ,the biographical sketch, and the bibliographical material, and, of course, last Friday we talked. . .
9. CU reaction of student.	. . .about his book, "The End of My Life."
10. LS Madden as he finishes comment, signals for transmission to begin.	So I think we'll just bring in the author at this point and let you hear from him.
11. ECU hand turns switch to "Reproduce Incoming and Outgoing."	
12. LS Madden as he turns on slide projector. Author's portrait appears on screen.	BOURJOILY'S VOICE ON TELEPHONE LINE: ". . .I'm sitting in a telephone booth in a town called Tlacolula. . .
13. MS projector and image.	. . .in the state of Oaxaca in Mexico.
14. CU portrait.	
15. MS Madden goes to blackboard and writes "Tlacolula," and "Mitla".	This booth has the only telephone in Tlacolula, and I have had to come here from the town of Mitla, which is about ten miles away in order to get to a telephone at all. . .
16. CU speaker on wall.	. . .Let me interrupt myself for a minute and ask how well all of this is coming through. . .Should I be speaking more slowly?
17. CU tape recorder.	
18. CU control panel.	**VOICE:** Sounds very good up here in Carterville.
	SECOND VOICE:
19. CU hand on switch.	This is Langston University. We are not receiving you too well.

20. CU Madden.	MADDEN: Langston, you seem to be having some trouble with feedback. Will you watch the placement of your microphones please. . .Ok, go ahead.
21. MS amplifier as seen from behind engineer.	BOURJOILY'S VOICE UNDER TO NARRATOR: Long distance lines connect the Stephens campus and classrooms on several other campuses in an intercollegiate, interstate network. . .
22. MS students.	. . .putting hundreds of students in direct, two-way communication with each other - and with the speaker. BRING BOURJOILY UP.
23. CU the speaker box.	. . .Now, the book that came out of the war, "The End of My Life". . .
24. CU projected image of Bourjoily.	BOURJOILY UNDER TO NARRATOR:
25. MS students.	After an introductory statement from the speaker. . .
26. Dissolve to LS of class from front of room.	. . .he is fed questions originating directly from all classes participating in the program.
27. Dissolve to CU girl.	GIRL: This question relates to the title of your book. . .We know that Skinner died at the end of the book. Could we assume that Skinner died spiritually before this?

28. CU speaker box.	**BOURJOILY:** I think I was certainly thinking in terms of spiritual death. . .
29. MS picture of Bourjoily and projector.	. . .the core of the human being was in some way exhausted and would have no further vitality. . .
30. CU Bourjoily.	
31. CU girl reacting.	
32. CU picture of Bourjoily.	. . .and I meant to imply a kind of rebirth. . .
	BOURJOILY UNDER TO NARRATOR: This is person-to-person teaching. . .
33. CU speaker.	A way of tuning in on national and international resources of the human intellect. . .
34. CU recorder.	. . .a way of recording and storing the wisdom of our own time.
35. Dissolve from image of Bourjoily to picture of Dos Passos.	. . .Here is a part of a conversation with author John Dos Passos - the first contemporary writer to lecture on the amplified telephone network. . .
	DOS PASSOS:
36. CU students.	. . .A number of poets were experimenting in the use of language very much the same way that the cubist painters were experimenting with form and color. . .
37. CU speaker box.	. . .They were trying to produce something that stood up off the page. . .

38. CU reactions.	DOS PASSOS: . . .some of them called it "simultaneity" described it as a simultaneous chronicle, a novel full of snap shots of life - like a documentary film. . .
39. CU Dos Passos picture.	
40. Dissolve to CU Madden as he listens. Super title: "Charles Madden, Project Coordinator, Stephens College."	DOS PASSOS UNDER TO NARRATOR: Each classroom in each college on the network has its own teacher, in addition to the master teacher at Stephens. MADDEN (offstage): Technology has made it possible for us to talk directly and informally with persons whose actions and ideas are shaping our world. . .
41. CU book on desk of student ("Mid-Century")	. . .and a student who has read "Mid-Century" and has wondered about Dos Passos's style, is answered directly.
42. CU image of Dos Passos.	DOS PASSOS: Now, Mr. Madden, perhaps you could come in with some of your questions.
43. CU Madden.	MADDEN: Alright, Mr. Dos Passos we'll begin, then.
44. CU girl asking question.	GIRL: Do you think this is a particularly tragic time, or one which offers us more unavoidable moral choices than other times?

45. CU Dos Passos.	**DOS PASSOS:** Yes, because it is a period of violent transition, and all periods of great transition are very difficult for the people. . .
46. CU reaction of girl who asked the question.	. . .who live through them. . .
47. CU picture of Dos Passos.	. . .I think it is very interesting to go through such a period.
48. CU Madden.	**MADDEN:** A good period to live in, then?
49. CU Dos Passos picture.	**DOS PASSOS:** I don't think it is a bad period at all to live in. . .
50 CU Madden.	**MADDEN (VOICE OVER):** Amplified teaching by telephone involves more than arranging for guest speakers; more than turning on the equipment. . .
Reaction of students in class, listening.	. . .more than listening. For each of the sessions the students are expected to do the usual amount of preparation for a college-level course. . .
51. Dissolve to CU of Ellison's book "Invisible Man" and background sheet on student's desk.	They are provided with a bibliography of materials and data of the guest speakers.
52. CU Ellison's picture on screen.	**ELLISON'S VOICE:** There isn't too much to be said about "Invisible Man". As a novel it just about exhausts my eloquence along that line. . .

	ELLISON'S VOICE UNDER TO MADDEN'S VOICE OVER:
53. CU Madden, listening. 54. MS technician at panel. 55. CU Ellison book on student's desk.	If anything, the use of classroom telephone interviews requires more careful preparation and greater skill in execution. . .on the part of the instructor than conventional teaching.
	ELLISON UP:
56. CU Ellison.	The attempt was to arrive at some definition of human values. . .
57. CU students.	. . .as seen from the perspective of an American Negro living at a given time in these United States. . .
58. MS Madden and screen. Slow zoom out to include whole room.	ELLISON UNDER ON ZOOM WITH MADDEN, VOICE OVER: FADE MUSIC IN.
	NARRATOR:
	For Renaissance man, whose knowledge embraced all fields, we have substituded specialists. But the classroom teacher now has resources that give him access to more knowledge than the Renaissance man could have dreamed of. To avail himself of these resources he has only to use his imagination and the technology available to him.
FADE OUT.	MUSIC UP AND OUT.

1. Fade into LS pan to exterior Laboratory School, BYU, Provo, Utah. Super title: "Brigham Young Laboratory School, Provo, Utah.	EXTERIOR SOUNDS, BIRDS, ETC. THEN UNDER TO NARRATOR: This is the Laboratory School of Brigham Young University, a private institution with a select group of students from the first through the twelfth grade. The use of programmed materials, instructional technology, and teacher time to individualize learning is expressed in this school's continuous progress plan.
2. Dissolve to Thomson in his office. Super title: "Lowell Thomson, Principal."	THOMSON (SYNC): The continuous progress plan, as we see it at the Brigham Young Laboratory School, is one which enables each student to progress somewhat independently through the curriculum at a pace best suited to his own capabilities. Now, when we mention continuous progress, of course, every school system throughout the world has elements of continuous progress in it. Nevertheless, there are certain built-in barriers to progress that we have been familiar with in our school systems in the country which have produced a number of starts and stops and many times discouraging situations for students. These things we're attempting to eliminate at our school by allowing the student to progress continuously through a given subject area independent of the grade level or the usual artificial barriers that we place in front of the student. . .

3. Dissolve to LS carrel area as Hendrickson addresses the students.	THOMSON (WILD): . . .In order to allow the very diversified activities to take place. . . we have provided a number of areas that students will be working in. Our main area is the carrel, or independent study area.
Students deploy.	HENDRICKSON (SYNC): . . .Those who met on Friday with Mr. Osler and received a composition assignment should also report to the studio and meet with him today. So, will those who are taking tests go to the testing room, and those who are meeting with Mr. Osler go to Studio B.
4. CU workbook as student checks with pencil.	BACKGROUND SOUND UP THEN UNDER TO THOMSON (WILD): A good part of the student's time will be spent in somewhat independent study. . .
5. MCU of student in carrel.	. . .However, we have not felt it wise to leave the student entirely on his own even while he is studying independently.
6. MS the assistant teacher with call-board in background.	We have provided assistant teachers to work in the independent study area. . .
7. CU the assistant teacher.	. . .and their role, primarily, is to assist the student with the immediate questions that might come up. . .
8. MCU the student pushes "help" button and light goes on in carrel.	. . .while he is studying independently. The student has the mechanism whereby he can alert assistant teachers that he is need of. . .
9. MS the assistant teacher as she notices the signal.	. . .some help.

10. CU the signal light.

11. MS as assistant teacher exits.

12. MS assistant teacher enters carrel. Student snaps "help" light off.

ASSISTANT TEACHER (SYNC):

What's your problem, Chris?

STUDENT:

I'm having a problem with these symbols.

TEACHER:

Do you remember what a symbol is?

STUDENT:

Yes. It's what something is - but something more.

TEACHER:

Yes. Now, in this particular story you have to find out who Miss Brill is. Who is she?

13. CU student reacting.

STUDENT:

She's an old maid.

TEACHER:

Yes. Now, all the things that surround her are things that surround an old maid - fur, for example. What's fur going to do for Miss Brill?

STUDENT:

It's going to make her comfortable.

TEACHER:

Ok. Comfort is pretty important for an old maid, isn't it?

14. Dissolve to CU math teacher Chatterly as he states problem, moves to overhead projector. Camera pans to screen.	CHATTERLY (SYNC): Ok. Now, students, we've studied the method for solving simultaneous equations, or systems of equations and two unknowns. Now we're going to extend this idea to help us solve an actual problem involving two variables and two unknowns. . .
15. LS teacher and class as discussion continues.	CHATTERLY UNDER TO THOMSON (VOICE OVER): The teaching studios themselves are really small classrooms. We have found that the need for large classrooms is much reduced with an individualized program and the teacher is usually calling in groups of students ranging from five to twelve or thirteen.
16. MS Reverse angle of class.	
17. LS teacher and class.	So these we call teaching studios, and are used almost continually during the day.
18. CU student.	The students, as they prepare for examinations, will proceed to. . .
19. MS student enters testing room, is met by a paraprofessional who hands him a test.	. . .a testing room which is under the supervision of a para-professional who is responsible for giving the students their examinations.
20. MS as we see math teacher in adjacent studio working with his class as camera pans down from window to testing carrel as student enters, sits, begins to take test.	It is also under visual control of one of the teachers whose teaching studio is adjacent to it.
21. MS student approaches Materials Center check-put window.	The Instructional Materials Center is really an extension of our library for the school. Actually, it is not an attempt to replace the library. . .
22. MS as librarian selects book from shelf of materials.	. . .but through the Instructional Materials Center we make available to the student those materials which are important to him. . .

23. MLS as librarian delivers material to student who exits.	. . .to have immediate access to in the course of study.
24. Dissolve to CU Thomson.	THOMSON (SYNC): This kind of a program demands that the best materials that are available be used and part of teacher's task is to select the materials very carefully that will enable the students to learn effectively those things that are required in the subject area. . .
25. Dissolve to MS instructor with headphones seated at control panel. Students in listening carrels established in background. A 16mm rear-screen film is being shown.	VOICE FROM FILM: . . .que tenga mucha fiebre y toda classe de complicaciones. . .
26. LS from rear of class as film ends, instructor Arnett rises, moves to floor level of class.	. . .pero a pesar de lo que diga el medico, y a que tarde llegare. ARNETT: Ok, class. Take off the headsets. You've seen the film a couple of times, now we want to ask you a few questions about some of the different types of things you see in this film - different than you see in the United States, and typical things. What are some of those? . . .
27. CU girl, responding.	. . .Felicia? GIRL: Well, the roofs on the houses had an architectural Spanish style and they had tile on top of them. ARNETT: They did. And what else? . . .
28. MS reverse featuring boy.	. . .Joachim?

BOY:

Well, the walls in the buildings were made out of adobe.

29. MLS of class from teacher's point of view.

ARNETT:

That's right! Let's switch now to Spanish. No Ingles. Voy hacer preguntas. Cuantas personas hay en este pelicula?

30. CU boy.

BOY:

Hay dos personas en esta pelicula.

ARNETT:

Pelicula!

BOY:

Pelicula!

31. Dissolve to Thomson.

THOMSON (SYNC):

We are frequently asked just what the role of the teacher is in the continuous progress school. And in this day of teaching machines and some worry on the part of some educators that the role of the teacher is becoming somewhat less important than before, we hasten to reassure people that the role of the teacher in our plan is very much enhanced. . .

CLASS SOUNDS UP THEN UNDER TO CHATTERLY (VOICE OVER):

32. CU Chatterly. Super title: "Louis Chatterly, Math Instructor."

It's a different form and, I think, more taxing because . . .

33. MS the class seated, responding to Chatterly.

. . .where you had 30 students and you knew where they were every minute. . .

34. MLS students moving out of carrel area to different activities.	CHATTERLY: . . .you've got 30 students that might be in 30 different places and so it is more taxing on the teacher from this standpoint.
35. MS student in carrel in language lab, dials.	. . .Certainly, special tools of recording. . .
36. LS students leaving carrel area as assistant teacher moves in to help a student in carrel.	. . .and different methods of supervision. . . . . .have to be employed. . .so that the teacher can, as quickly as possible, grasp where the student is. . .
37. MS Chatterly working with class.	. . .what problems might come up.
38. Dissolve to CU Hendrickson.	HENDRICKSON (VOICE OVER): I spent quite a number of years in public schools. . .
39. MS Hendrickson working with group of three students. Super title: "Lamar Hendrickson, English Instructor."	. . .and I find the experience that I have here very much more exciting than the traditional role. Since I don't have to do the routine type of things. . .I'm spending practically 100% of my time in the studio. . .
40. CU girl student.	. . .talking to students either in small groups. . .
41. CU male student.	. . .or in larger groups. It is true that one has to have a wider range of acquaintance with materials. . .
42. CU hand on book, "Our Town".	. . .that student are working with than in the normal program. You can't be one page ahead of the students.
43. CU girl.	GIRL (SYNC): . . .I think it's just pointing out that life's too short. You don't have time to enjoy it, really, unless we take time to think about enjoying it. . .

44. Dissolve to MS instructor Arnett using remote-controlled rear screen slide projector with small language class. Super title: "Rex Arnett, Language Instructor."

ARNETT (VOICE OVER):

A lot of the chores that we used to have to handle you don't have to handle. They're handled automatically. . .

45. MS reverse of class.

ARNETT COMMENTS IN SPANISH (SYNC)

46. CU boy.

BOY (SYNC):

I don't get that one. I don't get the word, "sacas." What does it mean?

RESPONSE UNDER TO ARNETT (VOICE OVER):

As I look back over the past three years, I think that we certainly. . .

47. MS instructor using rear screen projector.

are teaching languages much better this year than we did the previous two years. . .

ARNETT UP (SYNC):

Entienden, todos? Ok. Let's go on to the next one. . .

48. MS the class.

. . . Aqui tenemos junta, la tinta, la pluma, el lapiz, el cuaderno. El cuaderno!

49. CU girl.

GIRL (SYNC):

El cuaderno!

ARNETT:

Cuaderno!

GIRL:

Cuaderno!

ARNETT:

Toda la classe. Cuaderno!

	CLASS: Cuaderno!
50. Dissolve to CU Thomson	THOMSON (VOICE OVER): . . . The role of the teacher in our plan is very much enhanced. . .
51. MS Thomson in office as he completes signing of paper. Secretary exits.	. . . In the continuous progress plan, the administrator also must remain somewhat on the cutting edge of innovations because no given group of materials or techniques or practices will long endure as new things become available.
FADE OUT.	

1. Fade into MS group of teachers in planning session, "John Marshall High School, Portland, Oregon." supered.	**NARRATOR:** A computer is changing the role of this group of teachers at John Marshall High School in Portland, Oregon.
2. MS the computer console.	The computer, one thousand miles away, generates a highly-complex class schedule.
3. CU computer tape reels in action.	The schedule is teacher-designed. . .
4. ECU Address Counter.	. . .but is so complicated that only a computer can. . .
5. CU IBM cards coming through sorter.	. . .manage its thousands of combinations.
6. Dissolve to MS Principal at desk. Title supered: "Gaynor Petrequin, Principal, John Marshall High School, Portland, Oregon."	**PETREQUIN (SYNC):** We wanted to vitalize learning and teaching by individualizing instruction. . .
7. Dissolve to MS teacher working with students on model building.	. . .We asked our teachers to think of how they would like to present their subject matter. . .
8 MS teacher and small group in discussion section.	. . .without restrictions of time that you have in a conventional program. But to get this into a schedule that is usable, we had to. . .
9. Dissolve to computer console.	. . .have a computer that would schedule the over 1100 sections that we now have, in distinction. . .
10. CU tape reels.	
11. CU computer keys.	. . .to the 340 that we had before. In other words. . .
12. CU male teacher.	. . .the teachers gave student information. . .

13. CU second male teacher.	. . .course structure information. . .
14. CU older woman.	. . .and facilities information. . .
15. CU younger woman.	. . .to the computer.
16. MS teacher using overhead projector in large group.	We look at the teacher as the person who knows best how to teach her subject as well as. . .
17. Reverse LS of the class.	. . .what to teach. Therefore, we have permitted our teachers to actually develop the schedule.
	NARRATOR:
	When school administrators make use of a machine that will generate the kind of schedule the teachers want, what do they get? On the surface, John Marshall High School looks like any number of moderately progressive secondary schools in the United States.
18. LS back of same room with film running.	Teachers use audio-visual resources
19. LS Reverse Students Watch.	for large-group instruction. . .
20. LS students discussion group.	Smaller groups are brought together for discussion. . .
DISSOLVE to 21. ECU Chem Schedule on door. Door opens to reveal class.	Science rooms include. . .
22. MS aquarium/boy takes reading.	stations for independent study.
23. MS "Instructional Materials" sign.	Locally produced, teacher-planned

24. CU 2x2 slides. 25. MS Transparency examined by AV Specialist.	materials balance off the use of packaged programs.
26. Extreme LS and Pan Left Over Main Library. 27. MCU individual study carrels. Dissolve to 28. MS Social Science Resource Center.	The well stocked main library also includes individual study carrels. And there are also departmental resource centers. . .
29. MS assistant in English Center passes out volume to student.	. . . .under the supervision of paraprofessionals.
30. MLS student approaches instructor's office adjacent to resource center.	
31. Two-shot as student asks question about report paper, and the teacher responds. Fade out.	Technology, as applied in John Marshall's computer program, brings closer the day when the teacher will more thoughtfully consider his effectiveness; more carefully attend to the needs of individual students; and deal not only with information, but with wisdom.

1. Ext. Valley Winds School, Children are entering.	
2. MS Valley Winds School. SUPER Title: Valley Winds Elementary School St. Louis, Missouri	(BACKGROUND SOUNDS OF CHILDREN'S VOICES UP)
DISSOLVE TO:	
3. LS Model of the school. The camera pans down to the model.	NARRATOR: This spiral, snail-shaped school is symbolic of change taking place in curriculum, materials of instruction, and building design.
4. CU Pan of the perception core in the model.	At its center is an area known as the "perception core. . ."
DISSOLVE TO:	
5. High-shot pan of core in the building. Students are engaged in a variety of activities.	. . .a wall-less space which is at once an instructional resource center, a laboratory for group learning activities, and an independent study area.
DISSOLVE TO:	
6. MS Check-out desk.	Through this perception core flows a rich variety of accessible and pertinent materials and experiences to meet individual learning needs.

	BOY: Miss Bagley, is there anything in the vertical file on the human eye?
	BAGLEY: Would you give him the vertical file number 223, please?. . .She'll give it to you, Jim.
Camera pans away to LS of the perception core with students at work.	**NARRATOR:** Students proceed through a course of study in which a major objective is to provide the motivation and material to help them learn on their own.
7. MS three girls using filmstrip viewers.	
8. Small girl using feltboard for story-telling about dragon.	
9. MCU girl using programmed math device.	The skills of inquiry, discovery, problem-solving, and inductive thinking. . .
10. Big CU of the question and answer window of the auto-didactic device.	. . .are essential parts of this curriculum.
11. MS boy at TV set. He motions to second boy who enters scene as program begins.	**TV ANNOUNCER:** Communism. A special five-part series for students on the theory and practice of the Communist strategy. . .
12. CU two-shot, children studying meal worms.	**HICKS:** How is the census going?. . .What did we have when we started?
13. MLS Hicks and class.	**CLASS:** Meal worms!

HICKS:

Where did these things come from?

CLASS:

From the meal worms!

14. MS children working with abacus and blackboard. The teacher, seated on floor, is helping.

CHILD:

Why don't we start out backwards and still get the same thing?

TEACHER:

Backwards?

CHILD:

And still get the same thing.

TEACHER:

Start out with the eight?

CHILD:

Five. . .three. . .

TEACHER:

Take away five. Is that right? And what does it equal?

CHILD:

Ten. . .No! Three!

TEACHER:

Is that right, Jimmy?

15. LS auditorium as group watches film.

MUSIC FROM FILM UP, THEN UNDER TO FILM **NARRATOR:**

Today our planet might be called "Planet Ocean", for nearly three-fourths of it is covered by water. . .

16. Reaction shot of Students as they watch.	Man cannot begin to understand the world he inhabits without an understanding of the sea. . . MUSIC UP
17. MS teacher with group as they respond together.	
18. MS pan shot from reverse side of screen across projection booth area with Lanman at projector.	MUSIC FROM FILM UNDER TO NARRATOR: Every student and teacher in this school is instructed in the operation of audio-visual equipment and in the skills necessary for their use in individual and group situations.
19. MCU Lanman adjusting projector.	But a technology of instruction is effective only if it supports educational objectives, and when it is inseparable from the curriculum itself.
20. Dissolve to LS teacher's meeting (Curriculum Committee). Mansfield talking.	In this school, the role of instructional materials is an integral part of the continuing dialogue of the Curriculum Committee as these teachers and resource specialists search for ways to make experience more meaningful to children.
21. CU Hicks listening.	
22. CU Tysinski listening.	

23. CU Lanman. Super title: "James Lanman, Curriculum Supervisor"	**LANMAN:** It seems to me that the problem that we're facing here is to decide how, without the benefit of a specific curriculum guide or structured program in the way of textbooks, that the teacher can act as a transactional agent between the materials and the children and the building so that a learning experience really does take place.
24. CU Wendelken. Super title: "Carol Wendelken, Elementary Teacher"	**WENDELKEN:** Well, I see all of us as resource people. My six and seven year-olds can't go to science or math resource people. I go to them and then I become the resource person for these children - one of many resource materials like books in the perception core and the projectuals you make and pictures and films and what have you. We use all of these things with the aid of a teacher to filter, more or less, the materials that are coming through, and which ones are going to be where the child can react to them at the necessary moment. . .
25. CU Robert Prochnow Super title: "Robert Prochnow Math Teacher."	**PROCHNOW:** . . . Yes, I think that this organization really lets me free to do more teaching and really personal contact with each student because I, for instance, don't have to spend time with the group with the films trip or with a movie even though it's valuable for them. But I make them aware that there are filmstrips available on topics and then they check them out from the library clerk and use them.
26. CU Mansfield. Super title: "Charles Mansfield, Principal."	**MANSFIELD:** Well, don't you think this has certainly changed the role or the nature of the instructional materials in the school? So that now it becomes important for us to have an extended range of

	MANSFIELD (Cont.): materials available? We can't have just a textbook series or one or two textbooks in each discipline. We have to have a wide array, not only of library books and textbooks, but films, filmstrips, tapes - all of these things, in order to provide the alternatives for pupils and teachers to choose from to individualize the program.
27. CU Hare, Super title: "Belden Hare, Elementary Teacher."	HARE: Another interesting thing here is that when pupils do begin to respond. . . I mean when you encourage the response, you can't predict, really, how a given pupil is going to respond or what his particular need would be, so that you're going to have a very great range of responses and that necessitates a wide variety of materials that you were speaking about, Charles.
28. CU Mansfield. DISSOLVE TO:	MANSFIELD: Well, I think that we have two things that are different here in the Valley Winds program. One is that the teacher is not just the repository of knowledge. . .
29 CU teacher listening to debate.	Another is that the teacher is not a technician merely carrying out the decisions which have been programmed. .
30. MLS group of students in debate. Overhead projector established.	. . . So the decisions have to be made somewhere about the learning experiences for pupils and this is where. . .
31. CU the teacher listening, observing.	. . . the teacher who has a knowledge of the objectives of the school and who also has a knowledge of. . .
32. MS the overhead projector in use as the student reports result on transparency.	. . . the pupils who are doing the learning, can help make these decisions.

33.	Dissolve to CU tape recorder as child turns it on. Then camera pans up to MS of children recording their own version of "Hansel and Gretel."	. . .And it seems to me that one of our big problems in the Valley Winds individualized program is merely finding the time and the way to make wise instructional decisions.
34.	Camera pans from CU to CU as children relate the story.	FADE IN END OF SYNC MATERIAL.
	Fade out.	

1. LS oval from east end, during first week of classes, Fall Quarter, showing masses of students. Super title: "The Ohio State University, Columbus, Ohio"	NATURALISTIC BACKGROUND SOUNDS UP.
2. Dissolve to shots of large numbers of students on campus.	BACKGROUND UNDER TO NARRATOR: The individual instructional needs of thousands of students on one of the nation's largest campuses. . . BACKGROUND VOICE AND SOUND MONTAGE FROM TAPES UNDER.
3. Dissolve to LS tape-transport cabinets with tapes in action. Slow dolly past long row of amplifiers and tapes to technician pulling tape programs from shelf after inspecting call sheet (Take 1).	. . .are being met with the Ohio State University's dial-access information system. . .Nearly 100 courses in language, literature, music, and theatre are presented on audio-tape in a system which operates seven days a week and into the late evening hours throughout the campus area. And the facility may be expanded to visual programs originating on videotape or film. BACKGROUND SOUNDS UP TO END OF DOLLY, THEN OUT.
4. MLS Denny Hall as clerk takes tape from file, hands it to student who goes to carrel, puts earphones on.	The program began as a traditional language laboratory. Students checked out tapes in a central listening center and listened independently in one of the center's many carrels.

	NARRATOR:
5. CU same student with old-style headset.	
6. Dissolve to CU another student with new-style headset, as she speaks responding to the program.	Sophistication and extension of the system, made it possible for students not only to listen, but also respond and play back their responses immediately. .
7. ECU volume and microphone control. Hand switches knob from "Record" to "Review."	
8. Pan shot from carrel of first girl, down row of carrels (end of LS Sc. 1).	Some programs, selected by the instructor and announced to the students ahead of time, operate on a time-clock basis playing at half-hour intervals during a 24-hour day.
9. CU dial with "Booth Number LC-112" and "North Electric" established. Hand switches "On" then dials three digit number.	The unique feature of the system, however, is the student-controlled program which starts automatically when a three-digit number is dialed in the carrel. . .
10. CU second girl.	. . .connecting the learner with the program requested.
11. CU amplifier cabinet. Lights, showing programs in usage, are lit.	Because of the high rate of usage, a digital computer is needed to interpret the many requests and call up the correct program stored in its memory system.

12. MS zoom-in on dial "ML 20".	Requests may be dialed in from listening stations all over the campus.
13. MLS students in carrel area in the Ohio Union.	These carrels, for example, are in the Student Activities Center which combines recreational and study facilities.
14. MS Main Library as girl walks past Dewey Decimal system files.	The resources of the University's Main Library now extended. . .
15. Dissolve to CU girl as she puts on headset in carrel, turns on switch, dials, opens notebook (Take 2).	. . .through the dial access system to the sound of both Chaucer and Chopin.
16. Dissolve to Ext. dormitory.	(FRAGMENT OF CHAUCER UP THEN X-FADE DIAL CLICKS ON VISUAL DISSOLVE)
17. MS girl with book studying in dorm. (Morrison Tower). Girls enter in housecoats. Pan as they enter carrels.	Dial-access facilities are also built into campus dormitories. Accessibility is the key to the value of this system which is available to students until eleven o'clock at night.
18. CU dial and workbook.	
19. Dissolve to CU dial "ML-14" as last two digits are dialed up.	
20. MLS from previous shot in Morrison Tower.	The system is also accessible to sororities, fraternities, and scholarship houses in the campus area on a rental basis. . .thus reducing the distance between "homework" and what goes on in the classroom.

21. Dissolve to MLS Dr. Ching and wife (Sc. 700) as he introduces lesson, in studio.	CHING: "Speak Chinese. Lesson seventeen. Listen carefully. Repeat what you hear."
22. CU Mrs. Ching.	MRS. CHING: (Speaks in Chinese). FADE UNDER TO NARRATOR: Taped lessons may be recorded by instructors in a campus studio, or in the classroom itself during a scheduled lecture period.
Recording tape spinning (Sc. 704).	(END CHINESE AND X-FADE TO GREEK)
23. Dissolve to MLS Pimsleur and Mr. and Mrs. Badekas starting Greek lesson in the studio.	(AS GREEK DIALOG ENDS, PIMSLEUR IS LISTENING).
24. CU Dr. Paul Pimsleur.	PIMSLEUR: In the next few minutes, you will learn not only to understand this conversation, but to take part in it yourself. Imagine an American man sitting near a Greek girl in someone's home or on a train. He wants to begin a conversation, so he says: "Excuse me."
25. Badekas.	BADEKAS (IN GREEK): "Excuse me."
26. Pimsleur.	PIMSLEUR: The Greek speaker is going to say this word part by part. You are to repeat each part after he says it. Your objective is to make your pronunciation sound exactly like his.

27. Badekas.	BADEKAS (IN GREEK, REPEATS FIRST PART OF WORD).
28. Dissolve to Thomas Warner in studio concluding introduction to Berlioz as engineer in background puts needle-down, on Warner's signal nod.	INTRODUCTION TO FINALE OF "SYMPHONIE FANTASTIQUE" AS ENGINEER TURNS GAIN CONTROL.
29. Dissolve to recording tape.	
30. Dissolve to tape transfer unit with master in foreground, three slaves in BG transferring at 15 ips.	(BERLIOZ UNDER TO NARRATOR:) Duplicate tapes re-corded and programmed into the dial-access system, multiply the number of channels available for a single lesson.
31. Dissolve to CU "ML-14" dial.	The computer-guided system at the Ohio State University is presently capable of. . .
32. Dissolve to MLS students in carrel area, the Ohio Union.	. . .handling more than 80,000 calls a week, or more than 10,000 student requests daily.
33. Dissolve to LS tape transport cabinet. Dolly to technician (Take 2).	With this learning system, teacher and student time is conserved; information is made more accessible. . .
34. Dissolve to LS students in carrels at the student union building.	. . .and the needs of a growing number of individual students are being met through technology in education.
35. Dissolve to CU girl with headphones in carrel.	(VOICE FROM TAPE: "AND NOW THE FRENCH HORN..." RUN ON HORN)
Fade out.	

1. Fade in to high pan shot of the University of Miami campus ending on the Instructional Resources Center. Super title: "University of Miami, Coral Gables, Florida."	BACKGROUND SOUNDS OF MACHINES, THEN UP.
2. LS the Center. High Angle.	NARRATOR: The University of Miami's Instructional Resources Center is one of many designs to improve both the quantity and quality of instruction demanded by the times. The octagonal-shaped Center includes. . .
3. LS Interior showing large classroom. Lectern with switch panel established in foreground.	. . .300-seat classrooms. . .
Screen images panned from rear of projection deck.	. . .with rear-projection screens delivering identical or completely different images to more than 2,000 students at one time. . .in one place.
4. LS the projection deck featuring variety of equipment, two technicians.	These images are supplied from a central projection deck with a capability for calling up projected materials of any type as scheduled by the instructor.
5. CU of various types of projectors.	BACKGROUND SOUNDS OF PROJECTED MATERIALS UP.

6. Dissolve to LS a large classroom with overhead projector in use by the instructor.	The teacher is found in the classroom. . .
7. LS the studio with teacher on stage, cameras established. High shot as seen from control booth.	. . .but he may also be found in the studio of the Center - an electronic lectern serving many classrooms.
Camera pans up from studio floor, through lighting complex to control room.	Here, the knowledge and skill of a single instructor is multiplexed, and amplified. . .
8. MS videotape bank operative with control panel and director in background.	. . .and stored for continued use.
9. MLS control room with director and multiple monitors established.	And because his image may be duplicated, repeated, and transmitted with the speed of light. . .
10. MCU the instructor on studio floor.	. . .this teacher, in one hour of instruction may reach more students than some teachers meet in a decade.
11. Reverse shot featuring two cameras as they move in, and the response meter.	His contact with an invisible class- which could consist of hundreds or thousands of students. . .
12. CU the response meter.	. . .is maintained by a response system which reports. . .
13. MS students in classroom responding by pressing buttons on seat fixture.	. . .reactions of individual learners to which the instruction is being transmitted.

14. CU the response button as student presses.	BRING COMPUTER SOUNDS IN, HOLD UNDER NARRATION.
15. CU response meter as it reflects the responses.	Responses may also be fed. . .
16. CU computer tape in action.	. . . into an analog computer-integrator for analysis and research.
17. Dissolve to Ext. High Shot of Center.	The University of Miami's Instructional Resources Center is one of many designs to improve both the quantity and quality of instruction demanded by the times.
Fade Out.	

1. Fade into LS Exterior unfinished school structure, Artesia, New Mexico as architect walks along railing, stops, peers thoughtfully at structure as narration begins.	FADE IN LIGHT WIND SOUNDS, BIRD CALL, DISTANT DOG BARKING, THEN UNDER TO NARRATOR: What will be the shape of the school of tomorrow?
2. Dissolve over sketches of new schools in various stages and types of design.	How will it meet the educational needs of our time? How will the technological potential of this century be applied to advance educational objectives?
3. Dissolve to LS pan of Valley Winds perception core with students at work on a variety of projects.	Will the school of tomorrow be a perception center, with a rich variety of learning experiences to meet the ever-changing concept of curriculum?
4. BYU language lab with carrels featured. Teacher at front of room.	Will it be a continuous progress school, with a flexible, independent study approach?
5. LS John Marshall High School library.	Will print, photographic, and electronic materials be combined in learning resource centers. . .
6. AV sign at Valley Winds. Pan to check-out desk with students signing out for materials.	. . .Will such materials be freely accessible to both teacher and student. . .
7. Two-shot of boys and model of human torso. They refer first to the model, then open a book.	and will their use be as commonplace and simple as the opening of a book. . .
8. Dissolve to CU sign: "Instructional Materials Center" (John Marshall H.S.).	

	NARRATOR:
9. MCU AV specialist examining transparency.	Will the school produce its own materials of instruction. . .
10. CU two by two slides.	. . .to balance the packaged program
11. MS two girls using individual filmstrip viewers (Valley Winds).	and to meet local curricular needs. . .
12. CU boy and turtle, as he observes its action.	Will the school provide simple, concrete, non-programmed experiences. . .
13. MS students listening to tape using headsets (John Marshall).	. . .along with carefully programmed and tested methods. . .
14. CU girl at teaching machine in Socrates program.	. . .to help individual learners understand an increasingly complex and abstract world. . .
15. MLS the Socrates teaching machine room, with multiple carrels occupied by students.	How will the school of the future meet the demands for rapid, mass instruction?
16. Dissolve to pan up of model of "Learning Tower" from N.Y. World's Fair.	Will the school of tomorrow be a regional learning tower, serving tens of thousands of individual students.
17. MS keyboard and response screen as student punches (Plato).	BACKGROUND SOUNDS UP.
18. CU response keys being punched (Miami).	
19. CU student responding (Plato).	

20.	MS boy entering "Home Study Carrel" model from N.Y. World's Fair.	BACKGROUND SOUNDS UNDER TO NARRATOR: Will the home become a learning as well as a living center. . .
21.	MCU the carrel with boy punching up images.	. . .with major channels of news, information, and formal education combined in a single learning system. . .
22.	CU over the shoulder of boy featuring images on the screen.	. . .electronically integrating all previous forms of communication from books to programmed instruction.
23.	Dissolve to CU memory disc (Plato).	Will there be computerized storage and retrieval systems for immediate access to. . .
24.	CU card index sorter.	. . .more information on individual differences. . .
25.	MS operator at console of computer.	. . .than any teacher ever had in the history of education.
26.	Dissolve to angle shot of model "Learning Tower" and hold.	Will regional learning towers. . .
27.	Super CU laser beam (N.Y. World's Fair)	. . .be linked by laser communications pipeline. . .
28.	Super microwave dish over (OSU Antenna Lab).	. . .or microwave signals. . . . . .to other centers?

29. Dissolve out first tower behind laser and dish to a second tower at different angle.	CROSS-FADE COMPUTER SOUNDS TO AIRCRAFT SOUND, THEN UNDER TO NARRATOR:
30. Dissolve to MPATI aircraft in flight with antenna lowered.	Will the early experiment provided by the Midwest Program for Airborne Television prove to be a forecast of events to come?
31. Interior of plane showing broadcast equipment and technicians.	Will the idea of an airborne communications system transmitting to schools over a five state area at an altitude of 20,000 feet. . .
32. Dissolve to satellite animation.	CROSS-FADE AIRCRAFT SOUNDS TO SATELLITE SIGNAL "BEEPS" UNDER NARRATOR: . . .evolve into worldwide educational programming by satellite 20,000
Fade Out.	miles above the Earth?
	"BEEPS" UP AND OUT.

1. Fade into MCU Finn in Instructional Technology and Media Project quarters as earlier in film. Super title: "James D. Finn, Professor of Education, University of Southern California."	FINN (SYNC): Technology is making the future of instruction more capricious and hazardous on the one hand, and more full of opportunities for teachers and learners on the other.
2. Begin slow zoom or dolly into Finn. Fade subtitle out.	But a technology of instruction will not make education less humane, or destroy the personalities of teachers or students unless a social decision is made to use it for this purpose. If technology - if man-machine systems - are used to relieve him of routine information-dispensing and bookkeeping functions, the teacher may then begin to play a new, more critical, and more excitingly professional role than ever before in the history of education. The question is: Will he learn to assume that role?
3. Dissolve to MS instructor at Edex system console. Images are seen projected behind him.	UNDER TO NARRATOR: The teacher of tomorrow will need to be trained in and understand the process of human communication.
4. Dissolve to MLS Air Force Academy studio with Caton at lectern.	He will need to know how to use and control instructional media.
5. Dissolve to MS Academy class watching instructor on monitor as instructor also watches himself in action.	He will need to learn to improve the quality of his own teaching by watching himself teach.
6. CU the instructor observing the television image.	

7. Dissolve to MS teacher in Dublin classroom watching TV program with students.	And the teacher of the future will learn by watching master teachers at work in her own classroom.
8. LS from rear of room showing teacher, student, and TV monitor.	The teacher will be a learner along with her students.
9. Dissolve to MS Madden switches on slide projector. Stephens College.	Instructional technology will help professionalize the process of teaching. . .
10. Dissolve to MS Miami TV center as two cameras move in on teacher in studio.	But this use must be systematic. . .
11. Dissolve to dial access system O.S.U.	Facilities and materials must be immediately accessible.
12. MS instructor at overhead projector.	The hand of a good teacher. . .
13. MS Madden switches on 2x2 slide projector. Stephens College.	. . .must always be at the switch. . .
14. Dissolve to MS small girl with headphones as she responds to teacher in background (Music Research).	MUSIC UNDER TO NARRATOR: This is a teacher of tomorrow. Born in a time of communications revolution, the child of today is already at home with instructional technology.
15. MS reverse as child punches response panel.	
16. CU boy responding to Plato.	As children are taught today, the teacher of tomorrow will teach.

17. LS Plato lab.	Instructional technology can make it possible to do what the good teacher has always known must be done.
18. ECU response panel with "Foiled Again" signal registered. This changes to "What do you wish" frame.	The endless task is to speed up. . . organize, individualize, test, and improve the quality of what is taught
19. ECU keyboard with "Help" button being pushed.	. . .and learned.
20. CU the boy responding.	. . .and keep the human being, the teacher and the learner, central in the process.
21. Two-shot of teacher and student in consultation (John Marshall H.S.).	MUSIC UP TO COMPLETION.
22. Dissolve to MS teacher and small group in science lab (Valley Winds).	
23. Dissolve into final credit titles.	
Fade Out.	MUSIC UP AND OUT.